Telephony.

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Connection Contracts Given a Broad Construction.

Connection contracts should be drawn with a view of providing for the future increase and expansion of business. It should not be left uncertain whether they intend to provide for the interchange of only such business as the contracting parties have at the time of signing, but should be so worded as to cover future business to be acquired as well.

In a recent case, the supreme court of Kansas interpreted a contract between a local telephone company and a long distance company relating to the transmission of messages of each one over the lines of the other. The local company, by the terms of the contract, granted a license to the long distance company to connect with the former's system "so that an interchange of business may at all times be carried on between said parties." It was provided that the lines of both parties should be so operated that service might be given over all lines owned, controlled or connected with the lines of either of the parties over the lines of the other and its connections. The long distance company agreed to transmit all messages destined to points on the lines of the local company not reached by its own system of wires to and over the lines owned or controlled by the local company. The local company agreed to transmit all business to points "not now reached by its or his own line or lines over the lines" of the long distance company. When the contract was executed the local company had no line to Osawatomie, Kansas. After the execution of the contract, the local company secured a connection with Osawatomie through a rural company of that city and commenced transmitting messages originating there over the long distance company's lines. As the long distance company itself had an exclusive contract with an Osawatomie company it brought an action to enjoin the local company from continuing to send Osawatomie messages over the long distance line. The court held that the contract gave the local company the right to forward over the long distance line, messages originating at Osawatomie, even though the local company had no telephone connection there when the contract was made.

The decision of the supreme court of Kansas in this case, which is entitled "Kansas City Long Distance Telephone Company vs. Paola" (106 Pacific, 290), is apparently intended to be favorable to enterprise and the extension of telephone facilities. Yet it treads dangerously close to the pitfalls of destructive competition by farmers' mutual

companies, which have a mushroom growth, and gradually lapse into decay as the result of poor construction, inadequate service and bad bookkeeping.

The Telephone Habit.

One of the factors which makes telephone investments secure is what is known as the "telephone habit." Once people become accustomed to the service it is considered indispensable. Commenting on this from a social viewpoint, the Hutchinson, Kan., Gazette says:

"When their telephone would not work yesterday morning, many women started from one neighbor to another until they found one who knew why they could not get central. It was because the B. & O. Company had a fire. Then they fretted a little and wanted to know how they were going to get along without the telephone, and how people got along without them before there ever were any.

"Well, people used to do the same thing many of the women did yesterday morning; run from one neighbor to another to find out the news or else to tell it. One woman yesterday wanted to telephone to her daughter in the country, to find out when she was coming in and to tell her how much butter, eggs and so forth she wanted. But it was back to the old days and wait till she arrived, and then tell her."

It certainly is hard to get along without telephone service. A man can quit eating meat for a while, and get along very comfortably on the kind of diet invented in the Garden of Eden. But if he knocks off on telephone service he has to pay for it in a thousand little annoyances and expenses. So, it is almost safe to say, "Once a telephone user, always a telephone user." And this makes telephone contracts a source of as much comfort to the investor in this class of property as is the tax list to the holder of municipal bonds.

Telephone Booth Ventilation.

The ventilation of public telephone booths is a problem which is attracting ever-increasing attention. The telephone managers who have tried it know that it pays. Various methods have been tried, the most common of which is the use of an electric fan within the booth, opposite perforations in the woodwork. The fan is suspended by springs to reduce the vibration and noise.

Hotel patrons are among the large users of telephone booths. Managers of hotels realize that their patrons do not like to enter ill-smelling, stuffy boxes to telephone and some of them have gone into the matter and obtained good results after some experimenting.

The management of the Great Northern Hotel in Chicago seems to have solved the ventilation problem satisfactorily in its own particular case. The plan adopted, while decidedly novel, is simple, gives good satisfaction and involves no operation expense.

About a year ago the problem came up at this hotel. After some consideration it was decided to try ventilation by natural draft, making use of the hotel chimney, which is about 175 feet in height. Holes, opening into a common receiver flue, were cut in the roofs of the booths and the flue connected with the chimney. The holes, about 8 inches by 10 inches in size, were covered with a neat grating and an opening or crack of about two inches was left at the bottom of each door, thus providing a path for the draft. By this means the air in the booth is constantly changing, all foul and impure air being drawn up into the chimney; cigar smoke passes unnoticed into the murky sky. The opening at the bottom of the door is not large enough to admit sound to such an extent as to interfere with telephoning.

The scheme worked out so successfully with a few booths that recently, when the number was increased to eight booths, all were connected to the natural draft of the hotel chimney. During the summer it is not necessary to place fans in the booths, as they are kept cool by the draft.

An attractive illuminated sign reading "Ventilated Telephone Booths" was placed above the row, thus calling particular attention to this most desirable feature. The booths are kept clean and the transmitter mouthpieces are washed with an antiseptic several times a day. The hotel management states that the use of ventilated booths has increased its telephone business materially during the year they have been used. This is another indication that the pay station business may be developed by use of clean, well-ventilated and attractive booths.

It is not always feasible to use the natural chimney draft scheme, but a mechanical exhauster recently put on the market provides for ventilation on the same correct principle.

His Fitness—And Yours.

The world is one large family, and all are more or less affected by the success or failure of any one. This is especially true of each business organization, where a common result depends upon the work of many individuals. Unfortunately too many take a narrow view regarding only their own interests, and not their relation to the whole. This leads to those petty jealousies which sour the life and poison the atmosphere of a business organization.

Brown occupies a position in charge of certain work. Some day Jones accidentally discovers that Brown is deficient on some point, or does not know some single fact which apparently he ought to know. Immediately Jones begins to reflect, "How does it come that Brown doesn't know that? Why, I have known that for years. I don't see how a man can be in the telephone business and not know that!" At once Jones condemns Brown as incompetent and unfit to hold the position and thinks himself better qualified. Brooding on thoughts like these begets a discontent which is not ambition, but saps the life out of a man's work. It also leads a person into doing small spiteful things which annoy and sometimes injure the other man.

In spite of the seeming deficiency Brown may be well fitted for the position which he holds and in which his critic might entirely fail. Ability and knowledge are not to be measured by single facts alone, but by the results which a man is able to obtain. Perhaps he has the power to handle men, or to organize operations and processes, which make him especially valuable in that particular position.

If we would all divert the forces of our being from criticism to helpful co-operation, and from discontented grumbling to loyal service to our company, it would react powerfully to our happiness and financial prosperity.

Tyranny of Trusts Must Cease

So Says United States Attorney General Wickersham in a Washington Birthday Address.

The Sherman Law Furnishes Adequate Relief, $5,000 Fine or One Year's Penalty for Violation

In a notable address recently delivered by Attorney General Wickersham at the winter convocation of the George Washington University, he declared that the "Tyranny of the trusts must cease." He also declared the situation in this country when the rising tide of monopoly began about twenty years ago was analogous to that in England during Queen Elizabeth's reign, when the granting of special privileges aroused the people of that country to revolt.

Relief from similar conditions in this country, he said, was obtained by the power conferred on Congress to regulate trade and commerce.

The problem, the attorney general continued, was complicated by the dual nature of this government. In this instance, as in so many others in United States history, there was found in the simple but comprehensive charter of the national government the basis for the solution of this problem.

In the power conferred on Congress to regulate trade and commerce there was discovered a weapon adequate to the need; and the simple, comprehensive enactment that all contracts and combinations which put a restraint upon interstate or foreign commerce should be unlawful and that the federal courts might enjoin them, placed in the hands of the national judiciary the power to stem the rising tide of monopoly.

"The underlying principle of this legislation," says the Attorney General, *"is the preservation of the right of the individual to carry on trade and commerce free from undue control and restraint on the part of great aggregations of individuals or capital; in a word, to protect the individual from the tyranny of a group.*

"It is because of the increase in the number and character of our common concerns that we are turning more and more to the source of national power for the principles which permit of its application to new evils as they arise and to the extension of benefits and advantages, which are of common concern to all, not merely to a particular state or locality."

The fundamental principle guiding all successful civilization, the Attorney General concluded, must be to preserve, in as large a measure as is consistent with the welfare of the whole, freedom of action in the individual.

The provisions of the Sherman Anti-Trust law, relating particularly to telephone mergers, are as follows:

Sec. 1. Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several states or with foreign nations, is hereby declared to be illegal. Every person who shall make any such contract or engage in any such combination or conspiracy, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding Five Thousand Dollars, or by imprisonment not exceeding one year,. or by both said punishments, in the discretion of the court.

Sec. 4. The several circuit courts of the United States are hereby invested with jurisdiction to prevent and restrain violations of this act; and it shall be the duty of the several district attorneys of the United States, in their respective districts, under the direction of the Attorney General, to institute proceedings in equity to prevent and restrain such violations. Such proceedings may be by way of petition setting forth the case and praying that such violation shall be enjoined or otherwise prohibited. When the parties complained of shall have been duly notified of such petition, the courts shall proceed, as soon as may be, to the hearing and determination of the case; and pending such petition and before final decree, the court may at any time make such temporary restraining order or prohibition as shall be deemed just in the premises.

Sec. 8. That the word "person" or "persons" wherever used in this Act shall be deemed to include corporations and associations existing under or authorized by the laws of either the United States, the laws of any of the Territories, the laws of any State, or the laws of any foreign country.

We are reliably advised by attorneys who have investigated the matter that all telephone companies that act as a terminal in receiving or forwarding interstate telephone messages, as well as those actually engaged in handling interstate messages over their own lines, are subject to the provisions of the Act It will thus be seen that the provisions of the law cover practically all of the Independent companies, both large and small, as there are but very few of them that do not at some time or other handle messages that cross state lines.

It is understood that a general investigation of the violation of the law by telephone companies is under way and that numerous prosecutions are liable to follow. THE ACT SUBJECTS THOSE GUILTY OF ITS VIOLATION TO A FINE NOT EXCEEDING FIVE THOUSAND DOLLARS ($5,000.00) OR TO ONE YEAR'S IMPRISONMENT, OR BOTH.

One lawyer tells us that the most flagrant violation of the law that has occurred since its enactment is the purchase by the American Telephone & Telegraph Company of the dominant interest in the stock of the Western Union Telegraph Company. The public and the authorities seem to have lost sight of the fact that the American Telephone & Telegraph Company is one of the principal competitors of the Western Union Telegraph Company, in the telegraph business. A considerable portion of the revenue of the former company is derived from leasing its lines for telegraph purposes to news agencies, boards of trade and others. In addition to this the courts have unanimously held that telephone companies and telegraph companies are direct competitors, each engaged in the transmission of messages by wire.

The Bell company has also purchased a number of the larger Independent operating companies directly engaged in interstate business and has or is threatening to merge them with their plants in the same cities. Notable instances are the purchases of plants at Richmond, Va., Baltimore, Md., Madison, Wis., and Des Moines, Ia. All of these purchases constitute direct violations of the law, but they have apparently passed unnoticed by the Federal authorities, whose duty it is to institute prosecutions for its violation.

Senator Cummins of Iowa in a recent interview at Washington made the following statement regarding these mergers:

"Senator Cummins is not in favor of amending this law as

is proposed in some quarters and thinks that instead it should be strengthened.

"In this connection he spoke today as to the American Telephone & Telegraph Co.—Western Union Telegraph Co. merger. He said he had no doubt various resolutions and bill bearing on this matter would be introduced this winter.

"He favors legislation which will prohibit a telephone company from owning stock in a telegraph company, or a telegraph company owning stock in a telephone company.

"He regards the gigantic merger of the telephone and telegraph interests as of greater importance in Iowa and other localities, and said: 'This means that every Independent telephone company in Iowa will be driven out of business in five years, if the combination goes unchecked.'"

IT IS UP TO THE INDEPENDENT TELEPHONE COMPANIES TO AROUSE THE PUBLIC TO A PROPER APPRECIATION OF THIS MATTER AND TO CALL THE ATTENTION OF THE FEDERAL AUTHORITIES TO THE FLAGRANT VIOLATIONS THAT HAVE OCCURRED.

We are advised that the officers of the National Association have begun an investigation of this matter and desire all the Independent operators to advise them of any violations of the law that have occurred in their territories or of those that are contemplated.

The Ordering and Inspection of Poles.

In the ordering of poles some telephone companies do not go into the matter thoroughly, depending upon the pole dealer to make a guess as to the carrying out of the order. The order may specifiy some 45-foot poles, some 35-foot, some 25-foot and 20-foot poles. In a case of this kind the 45-foot poles would demand two cars and hence enough poles of the other sizes should be added to make up the weight for a minimum double carload, in order to save freight and thus reduce the cost of the poles to the lowest point.

The minimum carload weight from the Michigan, Wisconsin and Minnesota producing districts to points east of the Indiana and Illinois state line is 34,000 pounds, and to points west of the Indiana-Illinois line is 30,000 pounds, and the minimum for double carloads is 51,000 and 60,000 pounds respectively.

Most pole dealers have circulars giving the weights of the different sized poles so that a customer can figure out the number of poles it will be necessary to order to make up a minimum carload. Poles 40 feet in length and under can be put on single cars and from 100 to 250 poles of various sizes from 20 foot upwards can be loaded on a single car. The number can be quite accurately computed from the table of weights. In ordering it is best to specify the exact number and sizes of the poles which it is necessary to have, and then provide for a variable number of another size to make up a carload of either a minimum or maximum load.

The company which desires only a small number of poles generally has difficulty in obtaining them as the pole dealers do not like to take the order. The reason for this is that a carload rate has to be paid and the cost to the customer would be greatly in excess of the price where enough poles were ordered to make up a minimum carload. In a case of this kind it is best for the purchaser to endeavor to secure the poles from any electric light company or others who carry a supply of poles in some nearby city. If he is unable to do this, the pole dealer would make the shipment, but the cost would be quite high.

Upon inspecting a car of poles the inspector, if inexperienced in this work, should carefully study the specifications, making sure that every point is thoroughly understood. A point which is not well understood by telephone companies is that of the measurements at the top. For the purpose of brevity in ordering, the terms 5-inch, 25-foot poles; 6-inch, 25-foot poles, etc., are used. The diameter is not a correct means of measurement, as the tops are not exact circles, but sometimes vary several inches if measured at different points. The method of measuring the circumference at the top of the pole by tape is in common use by all of the large companies and is generally well understood, but in some cases, companies use a straight rule, and, as a result, report that some of the 5-inch poles do not measure the 5 inches. However, if these poles are measured by tape they would be found fully up to specifications. The use of the terms 5, 6 and 7-inch tops are misleading and circumference measurement should be used.

The Northwestern Cedarmen's specifications admit butt rot to the extent of 10 per cent of the total length of the butt. This is generally satisfactory, but it is impossible to frame up a set of rules for the inspection of butt rot that will apply in all cases.

Nearly all cedar trees of any size have rotten hearts at the butt. Generally this rot does not extend more than 4 or 6 feet upwards into the tree. It sometimes occurs that a butt will show very rotten without extending into the pole sufficiently to weaken it. All cedar trees are more or less rotten, but this rot does not spread after the tree is cut. While growing cedar is perhaps the most rotten of all trees growing in this latitude, after it is cut it is the most durable timber. It should be born in mind that rotten hearts are dangerous only when they impair seriously the strength of the trees.

Cedar which has floated down streams or which has been exposed to the weather for any length of time generally becomes dark colored and very unsightly. A few months' exposure will generally accomplish this result, thus causing the buyer to suspect that the pole is "dead." Live cedar always has a ring of white sap wood surrounding the heart wood. No matter how unsightly or discolored the exterior of the pole may be, a shaving from a live pole will show white sap wood. When cedar dies, the sap wood becomes gray and spotted. It occasionally occurs that a dead streak will be found on a pole caused by injury to the tree. If the dead sap wood is shallow not extending into the tree very far it does not necessarily affect the pole, but a pole encircled with a gray, dead sap wood. is brittle, without elasticity and unfit to bear any strain.

Occasionally pole dealers receive claims for shortages and poor poles, although the percentage of these claims is very small. When it is claimed that a large proportion of the poles in a shipment are poor, the claim is generally due to a misunderstanding of specifications. Sometimes a pole apparently not up to specifications upon examination will be found to be all right, as the apparent defect is more than balanced in another respect. It is practically impossible for a car of poles to be shipped with a shortage as most pole dealers count them three or four times before shipment is made. If a shortage or breakage is discovered by the customer, the railroad agent's attention should be called to the shortage immediately and a notation made on the expense bill to that effect. This will save a great deal of trouble and also hasten settlement of the claim.

Twentieth Century Makes Telephone Connection at Way Station.

The Twentieth Century Limited, the famous fast train running between Chicago and New York on the New York Central, has recently been furnished telephone service at Albany, N. Y. A circuit is made from a jack in the union station switchboard to a bumper post at the end of the track, and thence into a jack box from which a connection is made with the train through a flexible cord. Passengers may use the local service free up to one minute before the train departs.

A Dakota Company for Dakota People

Some Freaks of Human Nature—Our Old Friend the Commercial Club—A Consolidation Without a Skeleton in the Closet—Net Income and Reserves in Real Money—Some Bully Data on Toll Earnings

By J. C. Kelsey

Some men are born great, some achieve greatness, and others have greatness thrust upon them.

The poet might have said: Few people are born sensible; fewer achieve sense, and most of them have sense beaten into them.

Some towns are born great; some achieve greatness, and most of them try their best to dodge greatness.

The Union Pacific and Santa Fe railways would now be running main line trains to and through Leavensworth had some one beaten sense into their commercial heads.

But, as usual, the town dodged greatness and Kansas City had greatness thrust upon her.

The city of Fargo wanted the Soo railroad, and was willing to give land for yards and roundhouses, and even some cash bonuses. And the people were ready with firecrackers to greet the first locomotive should it appear. Why? Because the people wanted competition, that would guarantee them better and more frequent train service than they were getting.

About this time a group of well-known Dakota men, who had given the state a great part of their useful lives, asked for a franchise to make Fargo the terminus of a very comprehensive long-distance telephone system. They did not ask for local service privileges, but merely asked for permission to install telephones in business houses which were likely to use the long-distance service.

In other words, another form of railroad, instead of being coy and apparently reluctant, came to the city voluntarily and quietly asked for even a crust of bread.

Did anyone suggest firecrackers? Did anyone rush in to offer a lot for a building or pole yard? Did the Commercial Club give a banquet and did the champagne add its sporty pop to the jovialty? No, Pauline, nothing doing, nary a pop. They simply would not play at all with gentle stranger.

Finally the club rooms were given over to an argument between Bell and Independent forces, and the progressive business men who usually weep over their cups in contemplation of a greater city discreetly hid out in the brush.

Finally, an election was resorted to, and Fargo had greatness thrust upon her, in spite of an attempt to dodge.

It is hard to understand why a telephone connection is not as welcome as a railroad, especially when the former usually is willing to come in without bonus.

And it is harder to understand why a second telephone system is not as welcome as a second railroad.

Both tend to regulate the usual human nature of a monopolistic management.

If you are familiar with Dakota locations, you know that Fargo is the gateway to North Dakota.

The Northern Pacific Railroad enters the state at this point, and goes straight west to the Montana line.

In addition to the N. P. railway, the Soo railway crosses the state diagonally and in a northwesterly direction—crossing the N. P. at Valley City.

The Great Northern also passes northwesterly through the eastern part through Casselton and Devils Lake.

These three railways comprehend the North Dakota Independent Telephone Company.

Mr. E. H. Moulton had built good heavy copper lines to Fargo and Grand Forks. The lines extended north to Minto and west to Petersburg.

A lonely pay station at Morehead was the only chance the Fargo citizen had to call a subscriber of the Tri-State Telephone Company at Minneapolis and St. Paul.

At Casselton, Valley City, Carrington, Fessenden were exchanges owned and operated by Jones and Weiser, bankers of Fargo. They have a toll line reaching along the Soo to Aramoose. Besides, they had a large rural development in Barnes county.

At Bismark, a thriving exchange was owned and operated by General Hughes.

In company with Mr. H. R. Lyon, of Mandan, the Hughes brothers had built a line from Bismark along the Soo to Garrison.

Mr. Lyon had a copper line from Mandan to Dickinson, while the Hughes brothers owned the Dickinson exchange, and paralleled the Northern Pacific railway to Mandan.

At Hope, the Union Telephone Company operated an exchange and general office and owned a heavy copper line along the Great Northern railway to Casselton. It also had a heavy rural development.

In 1906, Mr. Moulton of the Tri-State, H. R. Lyon of Mandan, J. D. Brown of Hope, Robert Jones, Alexander Hughes and James Weiser concluded negotiations, and after due appraisal, the various companies consolidated, beginning operations in 1906.

Mr. L. D. Richardson of the Tri-State Telephone Company was appointed general manager. He was the moving spirit in the necessity of consolidation and was chosen to carry out some very comprehensive plans.

At this time there was nothing at Fargo—no connection was possible between the various properties. It was necessary to build heavy 200 mile copper circuits from Fargo to Bismark along the line of the Northern Pacific.

By an expenditure of $300,000 Fargo, Casselton, Carrington, Jamestown, Bismarck, Mandan, Dickinson and Glendive were connected by perfect long-distance lines.

A common exchange was installed at Fargo, connecting 200 long-distance stations.

Bismark was entirely rebuilt, and Casselton as well. All the loose ends were picked up, and one of the really great Independent telephone systems became a reality.

Following are the exchanges and number of subscribers of the company:

	Subscribers		Subscribers.
Bismark	609	Cleveland	20
Carrington	204	Orie	29
Casselton	236	Fargo	170

	Subscribers.		Subscribers.
Fessenden	115	Pingree	25
Finley	88	Rogers	29
Garrison	46	Sharon	40
Hastings	14	Underwood	33
Hebron	37	Valley City	726
Hope	166	Wilton	43
Leal	22		
New Salem	56	Total exchange subscribers	2,799
Page	91		

The rural exchanges and subscribers are as follows:

	Subscribers.
Carrington	25
Casselton	97
Finley	53
Hope	220
Page	150
Valley City	362
Total rural stations	907

The scattering toll stations number 312, making the total number of stations owned by the company 4,018.

The property of the company is as follows:

Assets.

Exchange construction	$203,578.27
Rural construction	137,092.36
Toll line construction	374,255.60
Real estate, buildings, franchises, etc.	191,995.25
Furniture and fixtures	2,548.89
Tools and teams	3,474.37
Reconstruction soon after appraisal	12,219.24
Stores	12,819.93
Accounts receivable—Due from exchanges, etc.	17,425.20
Cash	19,698.88
Unearned interest and incidentals	2,867.42
Total assets	$977,975.41

Liabilities.

Common stock	$242,648.00
Preferred stock	458,860.00
Notes payable	206,250.00
Accounts payable	7,871.95
Coupons	128.50
Tolls—Other lines	530.22
Taxes—Reserve	5,274.52
Renewal reserve	15,999.33
Coupons discounted	9.78
Surplus	40,404.11
Total	$977,975.41

The net station earnings for 1909 were $137,939.80. Note the expression, net station earnings. This means that the North Dakota company is entitled to the use of every dollar of the amount. All commissions and other items are paid and only actual net cash earnings are carried forward.

The additions to income amounted to $2,445.16, while the deductions amounted to $750.05, making a net addition of $1,695.11, or a grand total of $139,694.91 or $34.76 per station.

The total expenses were as follows:

Operating	$30,249.37	or $7.53	per station
Maintenance	17,904.46	or 4.45	" "
General office	19,272.53	or 4.80	" "
Total	$67,426.36	or $16.78	" "

Summation.

		Per Station
Net station earnings	$139,694.91	= $34.76
Cost of operating	67,426.36	= 16.78
Net for reserves, interest and dividends	$72,268.55	= $17.98

Operating percentage, 48 per cent.

After deducting renewal reserves of $4 per station year, they have as follows:

Net before reserves, interests and dividends	$72,268.55
Renewal reserves	15,998.33
Net	$56,270.22

After deducting interest of $10,159.48, they have:

Net before interest and dividends	$56,270.22
Interest	10,159.48
Net for dividends	$46,110.74

After paying 7 per cent on $458,860 worth of preferred stock they have as follows:

Net for dividends	$46,110.74
Seven per cent of $458,860	32,120.02
Net for surplus	$14,090.72

This company sets aside $4 per station, which is divided into two classes, voluntary and involuntary reserve funds.

The voluntary reserve fund is $3 per station year, and is used to reconstruct exchanges and lines which in the judgment of the management need it, where decreased maintenance charges and lessened likelihood of destruction would result.

The involuntary reserves are $1 per station year, and are supposed to reconstruct lines and exchanges which are destroyed by sleet or fire. In other words, where reconstruction has to be done.

The reserves are fully adequate, and will take care of usual reconstruction.

One of the most interesting bits of information concerning this company is the subdivision of the earnings.

There is invested in exchanges and exchange construction practically $240,000.

The earnings of exchanges for one year amounted to $69,448, or about $25 per station.

The cost of operating the exchanges was $38,202.

The profit from operation of exchanges was $31,246, or 15 per cent on the investment.

The operating cost percentage was 59 per cent.

The farm lines have an investment of $137,000. The net station earnings were $15,422, and the net cost was $9,709, making a profit of $5,713, or a little more than 4 per cent upon the investment. The ratio of operating expense was 63 per cent.

The earnings averaged $17 per station and it cost $10.70 to operate it. If you add fixed charges of $4 for reserves and $9 for interest, you can see that farm lines cost the company $23.70 per year—nothing under $2 per month will show a reasonable profit.

The toll lines have an investment of $375,000, or $94 per station.

The tolls earned a gross of $77,314, but all excess charges, commissions and extras were allowed, to the extent of $24,244, making a net toll clearing of $53,070, or $13 a station.

It cost $17,070 to operate the lines, leaving a profit for reserves, interest and dividends of $36,000.

This shows an earning percentage close to ten per cent. The cost of operation bears a ratio of 32 per cent to the earnings.

These toll earnings figures are very important. In a toll country, the earning of 10 per cent upon the investment shows that most of the companies are losing money on tolls. And it goes to prove that the toll rates of North Dakota are now at a reasonable figure.

A general division of earnings shows an average rental of $21.76 and a toll earning of $13.

People of North Dakota pay 6 cents a day for telephone service.

They should pay 7 cents a day for the quality of service they get.

The investment increased from $938,806.55 to $977,975.41,, or an increase of $39,168.86.

The net station receipts grew from $117,785.30 to $137,939.80 in 1909, or an increase of $20,154.50.

As 20 per cent increase in earnings on addition investments is satisfactory in this territory, or $7,800, you can easily see that Mr. Richardson is entitled to handsome credit for increasing the revenue $12,300 a year without any increase in investment.

The actual operation expense decreased $3,500 during the same period and service visibly improved, too.

The liabilities average $243 per station. More than half of this burden is carried by the toll lines; $126 per station can be allotted to tolls and $117 to rental points. Of this $47 can be charged to farm lines.

The net rental earnings applicable to reserves, interest and dividends are $36,268—nearly, or $9 per station.

The net toll earnings applicable to the same items are $36,000, or $9 per station.

The items run neck and neck, and give us most interesting data.

The company anticipates a great deal of work this year. New toll lines:

Mandan to Stanton.
Mandan to Cannon Ball.
Cannon Ball to Mott.
Cannon Ball to Nosodak.
Underwood to Turtle Lake.
This totals 230 miles, and will cost $55,000.

Additional circuits are as follows: Fargo to Carrington, 140 miles No. 10 copper; Dickinson to Beach, 82 miles No. 10 copper; Carrington to Turtle Lake, 190 miles No. 10 copper. This totals $29,180.

The Valley City exchange has been half rebuilt and the other half will be done this spring at a cost of $6,000.

The company has acquired the Dickinson exchange from the Hughes brothers and a common battery system will be installed at once.

To show how the toll receipts run, read the following:

November, 1908	$6,010
December, 1908	5,225
January, 1909	4,448
February, 1909	4,262
March, 1909	5,430
April, 1909	5,536
May, 1909	5,552
June, 1909	6,281
July, 1909	7,125
August, 1909	9,010
September, 1909	9,626
October, 1909	8,806

Note the distinctive rise in toll activity beginning at harvest time.

Gross toll receipts for 1908 averaged $61,715, and in 1909 they showed $77,315, a gain of $15,600, or 25 per cent.

There is not a more promising telephone company in America. Operating in the very heart of North Dakota, covering her most fertile territory, no company has a better foundation upon which to build successfully.

The company has no bonds, but it offers an excellent opportunity for a bond investment.

If it should choose to fund the floating debt, a bond issue of $300,000 would offer one of the safest investments in America. It earns nearly five times the amount of bond interest on $300,000 of 5's.

The renewal reserve program will gladden the heart of any conservative banker or investor, and could not help but meet with approval.

Fargo has had good luck since she admitted the North Dakota Independent Telephone Company. The city now has one of the finest hotels in the country, which undoubtedly was built to accommodate the vast army of manufacturers' agents, who are supplying the needs of a large and well organized telephone company.

Let all commerce clubs take warning.

The president of the company is H. R. Lyon, of Minneapolis. Mr. Lyon has been a resident of Mandan for nearly thirty years. He is a banker, has great flour mills and chains of elevators, and has numerous interests. He is a quiet man, plain in speech, powerful in action, and when one realizes what this one man has done single-handed in North Dakota, he will be sure that the company is in good hands.

The vice-president is Mr. J. D. Brown, of Minneapolis, for many years a banker at Hope. He is a fine running mate for Mr. Lyon, and his hobby may be said to be accounting. No telephone company has such an accurate set of records.

Mr. L. D. Richardson is general manager and has been in the telephone business for twelve years that I know of, and many before, too. He has made a signal success in showing that some consolidations do really result in true economy. Mr. Richardson has his troubles all right, especially since North Dakota had her first sleet storm in 1908. You will notice that the company has set aside $1 per station year to offset the newly formed habit.

His hobby is SERVICE, and he rides it as hard as Mr. Gary does. If you do not believe it, ask any traveling man.

The North Dakota Independent Telephone Company is destined to stand among the giants of the telephone business.

Moral:—And the rain descended and the floods came, and the winds blew and beat upon the house, and it fell not, because it was founded upon a rock.

Eastern New York Independent Properties Combined.

Four certificates showing the merging of local Independent telephone companies into the Commercial Union Telephone Company, of Troy, have been filed in the office of the secretary of state at Albany, N. Y. The companies which now pass out of existence are: Rensselaer Telephone & Telegraph Company, of Rensselaer; Saratoga Telephone & Telegraph Company, of Saratoga Springs; New Union Telephone Company, of Troy, and the Watervliet & Green Island Home Telephone Company, of Watervliet. The stock of the four companies was bought some time ago by the Commercial Union Telephone Company, which will now operate the combined property with headquarters in Troy.

Hints About Storm Guying

By Hamilton P. Fairman

The most satisfactory manner of placing line reinforcements, commonly known as storm guys, is a question which has been given much merited consideration by telephone engineers. Their study of the problem has been along the line of mathematical calculation. Allowing for a factor of safety, the maximum stress is figured, and reinforcements,

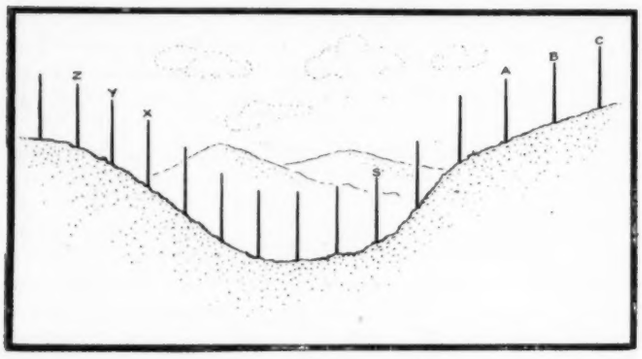


Fig. 1. Diagram Illustrating Impracticability of Following a Regular Method of Storm Guying.

in the form of guys, braces and fixtures, are placed to equalize the strain and carry the additional load over and above that which the pole itself will sustain.

To establish a uniform method, applicable to all lines, specifications stating where reinforcements are to be made are adopted. In order to secure a general application no consideration is given to varying conditions which exist between different lines. Following this plan, storm guys are placed at intervals of five, ten, twenty or forty poles, in accordance with the load the line is to carry.

There are various methods of guying: forward and backhead pole or anchor guys; right and left side guys to anchors, trees, or stubs and anchors; and push, or push and pull braces.

As to the distribution of the guys, viewed from experiment and practice, geographical conditions frequently show that a considerable percentage of the expense incurred is wasted, or rather, invested injudiciously. A line through a protected section—that is, where hills and trees form an

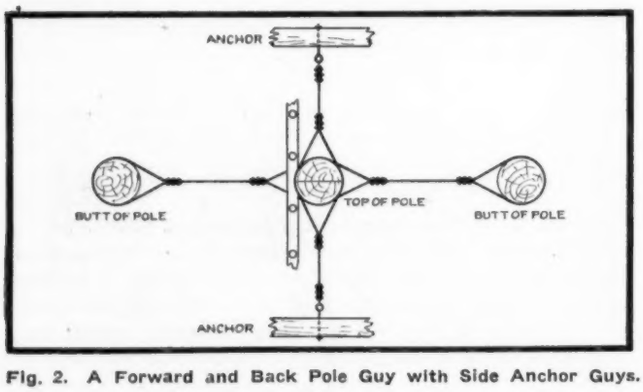


Fig. 2. A Forward and Back Pole Guy with Side Anchor Guys.

almost perfect wind-break—requires few, if any, storm guys. Yet they will be found at regular intervals, as on an unprotected line.

In one system between 10 and 15 per cent of all lines, taken as a whole, are protected. This is a conservative figure, as it is based on lines in a semi-wooded, hilly region, taken together with more than an equal number of miles of lines through a level open country.

To illustrate what may repeatedly occur in following a regular method of storm guying, Fig. 1 is presented. The storm-guyed pole *S* stands near the bottom of the valley and is well protected. Poles *A*, *B*, *C*, *X*, *Y* and *Z* are exposed from all directions. Does it not seem logical to assume that one of the exposed poles should be storm-guyed in place of pole *S*?

At first thought it does not seem practicable to allow a variation of the specifications. The men doing the work must have some rule of guidance. But, on the other hand, could not this rule be made to suit each individual case by a man familiar with the peculiar conditions involved in each particular instance? Perhaps when it is shown that from 15 to 20 percent of the money expended on storm guying does not accomplish the purpose intended, more consideration will be given the subject. It is not impossible that the requirements of the specifications, as laid down by the engineers, which form a basis for all construction, may be economically exceeded or omitted as circumstances warrant in this particular line of work.

Observations have been made from time to time to ascertain if the cause of line breaks could be attributed to a weakness due to either poor construction or maintenance.

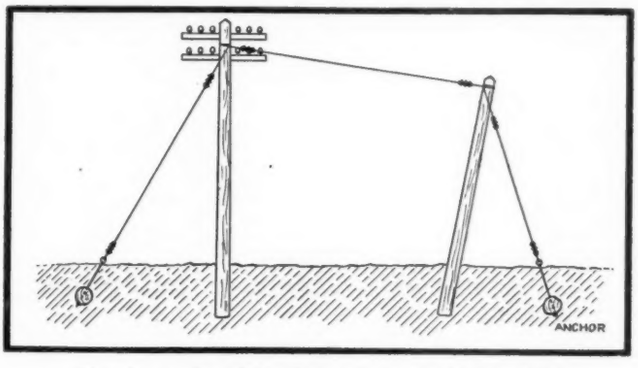


Fig. 3. A One-Side Guy to an Anchored Stub.

Frequently a pole weakened by decay is found, and usually this is considered the starting point of the disaster. These studies have developed but little practical information; none, at least, which warrants a departure from the present methods.

Storm guys are placed for two distinct reasons: First, to prevent line breaks; and second, to establish a stopping point should a general break occur. How far the present scheme may be successful in its aim is shown in the following. It is surprising to note what a small percentage of breaks are stopped by storm-guyed poles under the regular interval system.

The following figures were secured from personal observation while in the service of the A. T. and T. Co. The volume of data may not be sufficient to establish a general average, but is used merely as an illustration and is authentic:

In eleven breaks, involving between seven and eight hundred poles, making a total of twenty-two stopping points, seven were stopped by corner poles, nine by large straight line poles, and six by storm-guyed poles. Seven corners and nine storm-guyed poles went down. In two particular cases right-angle corners, each built on two poles, went

down, and the break continued to a large pole in one case, and a light single corner pole in the other.

It seems safe to say that if storm-guyed poles are intended to carry the additonal strain, the present factor of safety is not applicable in all cases. In considering storm guys as preventers of line breaks, it is evident that their exact location has not as yet been established with any degree of certainty to accomplish the desired purpose.

Could not practical observation and experience be combined with theory in this branch of construction and secure a greater margin of safety?

The accompanying illustrations show the various methods of storm guying. A forward and back pole guy with side anchor guys is shown in Fig. 2. Fig. 3 shows one side guy to an anchored stub. Fig. 4 shows a push brace and a push and pull brace; the former equal to one side anchor, and the latter equal to anchor guys in both directions.

Instead of head pole guys as shown in Fig. 2, head anchor guys are substituted when the line load exceeds forty wires. Forward and back pole guys are not entirely satisfactory because of the difficulty experienced in equalizing the tension. A slack guy is now in most cases a useless one, for under a sudden strain the top of the pole is very liable to snap at the point where the guy is attached. It is also a very difficult matter to attach a brace to a

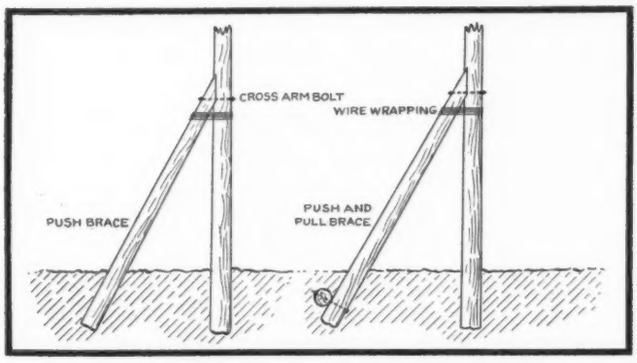


Fig. 4. A Push Brace and a Push and a Pull Brace.

pole. The present method lacks sufficient strength to withstand a twisting strain.

Anchor guys, if kept at proper and equal tensions, are the most satisfactory. Present good practice is to place them as shown in Fig. 5 (solid lines). The dotted lines in Fig. 5 show another direction of the line, changing the relation of the anchors entirely. By setting the anchors at a 90-degree angle from the direction of the line the strain in every case would be divided between two guys. It would not be any more difficult to secure right-of-way and in many places anchors could be set in the highway, where if a right angle location is used a stub is required across the highway. Anchors on private property could be placed nearer the fence line, and still secure the proper lead for the guy.

Some methods which have been considered in the past are now being brought forward by construction men for a more thorough test. One of the most favorably considered is the double pole scheme of setting two poles together. Whether this is more economical than to set one pole large enough to sustain the load of both is yet to be determined.

South African Institute of Electrical Engineers.

Johannesburg, Transvaal, is the headquarters of the only society for members of the electrical profession in South Africa. This is the recently organized South African Institute of Electrical Engineers. Its officers are as follows: President, C. W. R. Campbell, Germiston; vice-presidents, W. Elsdon Dew, Knights, and M. Rohmann, Johannesburg; treasurer, T. J. Armstrong, Johannesburg; secretary, Fred Rowland, Johannesburg.

The list of foundation members shows names of men in charge of important electrical work in South Africa, and the following responsible employes in the telephone industry. Samuel Antony Burnett, telephone department, Troye-

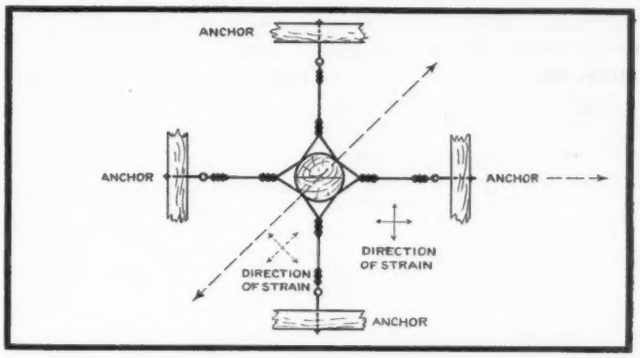


Fig. 5. Present Practice in the Use of Anchor Guys.

ville, Johannesburg; Martin Rohmann, telegraph and telephone departments, Johannesburg.

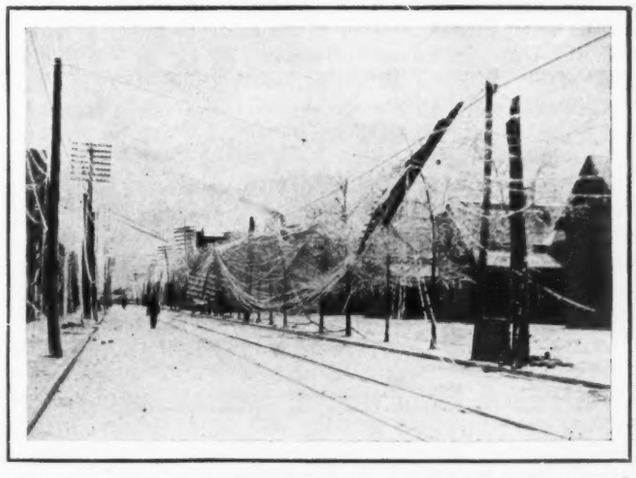
The society now has 71 members, 65 associate members, 14 associates and 8 students.

Master Reports in Case of Ozark Bell vs. Springfield, Mo.

Judge Willard P. Hall,, of Kansas City, as referee in the injunction proceedings of the Ozark Bell Telephone Co. against the City of Springfield, Mo., has decided that the Bell company has no right to restrai nthe enforcement of anordinance limiting rates. The testimony was voluminous, and, according to Judge Hall, showed that the prescribed rates woul dforce the company to operate at a loss, but other considerations induced him to decide in favor of the city. It is likely that the case will be appealed.

A Case of Sleet Storm Damage.

Among the many types of sleet storm damage which are represented in the photographs sent to TELEPHONY by its friends, there are few showing damage in a residence district



Interesting Example of Sleet Storm Damage on Residential Street.

where there are no trees to fall on the wires and supply a weight additional to that of the sleet. It is for that reason that the accompanying photograph, which was taken at Marion, Indiana, after a storm last year, is of particular interest. Expert construction men will be likely to find pointers of value on closely examining the photograph.

Operating Rural Lines*

By W. H. Barker

In considering the rural patron, the best thing to do is to remember our motto, "Look for the Shield" and point it out to him. The Shield is our emblem of protection, and we should not forget that it is intended for all classes. Bring the farmer in under it, and protect him the same as you are protected, and you have a good fighting warrior; but stand behind the Shield and ask him to protect you at his sacrifice, and you'll probably find him fighting on the other side.

Did some one ask how can we do this? You know the telephone needs of your rural patron better than any one else, or than he knows himself. It is your duty as an Independent telephone man to figure them out, and make your interest coincide with his, or you must call your work a failure.

When you stand behind the Shield and ask them to protect you, at the sacrifice of their own best interests, you are becoming so close a relative of the Bell company that you had better name yourself Bell and be done with it.

If you are worthy to be called Independent figure it out so that by giving him the service he requires you are benefiting your patron at the same time he is benefiting you, and you have a friend that will protect your interests while you are protecting his.

We try to give each rural patron his two marketing towns, and thoroughly believe that if they call each town whenever they have any grain or stock to sell, and sell it to the best advantage, they can pay us a liberal price for the service they require, and still save money enough through this channel. But if they only have one town, and get that for nothing from a competitor, it is still to their advantage to pay us for our service.

This is where I think our opponents fail. They make the proposition look good to the farmer, but pay well for themselves. But sooner or later your farmer will know what he needs, and then you have him safe with you, and his confidence cannot be shaken, and what you recommend he will know has two considerations, one for him no less than the one for yourself.

Do not let anyone convince you that you can not reason with the Iowa or Nebraska farmer. There are some in all classes who will not listen to sound argument, but there are always many among them who have good judgment, and these are the leaders; and their word will be accepted by the majority.

Do not be afraid of them! Get right out to their meetings with a good sound proposition, that has merit in it, and most of them will see the point and you gain their confidence by a square deal. You can get what is right, and fair, and a reasonable price for good service. They need it, and want it, and are willing to pay an honest price for it.

In regard to the local company operating rural lines in competition with mutuals, it can easily, and actually must, build the lines better, give better service, and make the service pay subscribers more than the mutual lines. It will find that while the mutual man is telling how cheap his service is, its own subscribers will soon be taking the company's part, and showing the mutual man what he is actually losing by having the cheapest service.

Now if you are a live, up-to-date telephone man, you will bring some instances to their notice which will clearly prove that your superior service is worth all they pay for it, if the mutual lines costs them nothing.

The renter is constantly moving from one locality to another, and from one line to another; you should give the service so that when he moves onto one of your lines, he is an advertisement for your company; and when he moves from your service to the mutual he will be dissatisfied with the mutual at any price.

The purely mutual company seldom governs lines as they should be. You can and should do this. And in so doing let me suggest two things, which our company has practiced, and has found beneficial: We go over our lines at least twice each year and put everything in good condition. We put new batteries in every telephone on the line at the same time; gauge the voltage and amperage of each battery, and record it in a small book, giving each subscriber a page, and a book for each line. When the batteries are taken out we have a volt-ammeter along, test each battery, and record the test in the book.

When they inquire tell them each battery is scheduled for about so many hours of service, and by gauging the battery you know about how many hours the receiver has been off the hook; deduct the hours it has been in use, and you have approximately the hours each subscriber has listened. Your knowing about how much each one listens materially cuts it down. Also let them know that in case very much listening is done, their telephone will talk weak. In a surprisingly short time after the listener can not be clearly understood, you can notice going over the line, "We can't hear Brown's, they listen too much," etc. Every subscriber is making a record for himself. Then when you have an occasion to speak to them about it, they don't hop up, get angry and say "Why, we never listen." They are aware you know what you are talking about. Batteries that are of any value when taken out can be used on the pole changer, or placed in city service where strong batteries are not required, and where a trip to replace them is short and inexpensive.

When needed, we place a cut-out between every three or four subscribers. This we do by dropping a line wire into the house, and passing it over a knife switch. In case of a "short" on the line you locate about where it is by opening the cut-out and testing. If very far from the central in bad weather, or when the troublemen are busy, you can hire one of the subscribers to go to each neighbors' telephone and cut it off, while you test. When located, one telephone only is out; the rest are in service.

If on a branch of the line, the balance of the line is immediately in service. Or in case they are unable to locate it, or get it out of the main line, opening the cut-outs each side of the trouble, leaves the line capable of giving more or less service. Frequently we have the line in working order again in from 15 to 30 minutes.

In case of any one bothering the line, these switches are a very good thing, as you can locate the trouble within three or four families, and then you can almost always guess out the culprit from among these few. We find that the mere fact that you can locate it cuts out nine-tenths of the trouble. If time would permit, many other things of this character might be mentioned, but you know your own local conditions and people. You should make it a study to give the service that no mutual, or Bell company can give.

Now about the small mutuals you switch for. Remember what we said above and protect them. Show them our interests are harmonious.

Go out to their meetings, arrange with one line for

*Abstract of a paper read at the convention of the Iowa Independent Telephone Association.

switching service, and make an agreement to go over their lines twice a year, and furnish each member a pair of batteries annually. Put their line in condition and you make a friend of each one. They tell their neighbors, and they, in turn, want the same service, and you want to give it to them. You know, if their line is out of repair and they can't get central, the operator is blamed, not the line. If one of your subscribers wants someone on the out-of-order line, your service is condemned, not the line. The time it takes your troublemen to go over the line would be taken up by the operator in hopeless ringing.

How it has worked with us is best told in the story of our first contract with the Floyd Valley lines. This was voted to us after extensive argument by just one majority. This year these same farmers voted a ten-year contract, without a single dissenting word or vote. You can judge how well a farmer is satisfied, when he will tie himself up to a ten-year agreement. On our five and ten year contracts we get $6 a year for each subscriber, with a dollar rebate if paid in advance.

The Octopus changes its plans too rapidly for us to know just what it is doing. But we all know what to expect, a very plausible, fine sounding contract, if you let them have all the say, but truly, having only their own interests considered, with no regard for the other party. Every time a new contract comes up, you know what it will be when the X-ray of close inspection, and analysis, falls upon it, and you can read the unwritten part. Do not be afraid of them, go out to the meetings they call, and study the contract. You know what your people need, and draft the opponent's ideal plan on a county map, with each patron's name down. You will soon find many objectionable features, some of which will check nearly every man.

Their latest ideal plan in our territory, is to have the different towns connected with their toll lines, then assist the farmer in establishing small mutual companies to operate one line only; the large mutuals are among their worst enemies, and by keeping the small ones tied up they hope to handle the large ones. They give them local switching, on very alluring contracts, with a switching fee of from two to three dollars a year. By a very little inspection you will see that these lines are to have but one town only, and pay a toll to all others. This doesn't sound so bad, but by a little further investigation, you will find a line that starts at one town, must not reach another, nor have any country switches, whereby they can reach others without paying toll. You see they don't mention it, but are arranging for a big toll account. If there were a high board fence dividing each town, and one could not neighbor outside, this would not be so bad. But when you consider that there is no place where one town stops, and the next one starts, that the name of pumpkin vine is very appropriate to the rural line, that they intertwine, and that the people exchange daily work with each other, that threshing rings are made up in regard to neighborhoods, not towns, then it is different.

Call their attention to the fact that to sign the contract of the Octopus would mean for some of them to pay a toll to talk to their friends across the road, or a half mile away; that their neighbor, or son, or old acquaintance living on the next road, cannot talk to them without paying the toll. Also have your actual figures with you of people they know, show them how many of your subscribers have saved much more than you have charged them, by calling the two towns before selling or buying, and they soon figure out that it is a poor policy, if the toll company will do their local switching free. Take your office records, show them that where the switching is cheapest, and the service limited, is where, with your toll accounts, the plan pays best, and the service is less. Show them by actual figures, which they know are true, what it costs you to switch, and take care of each subscriber.

Tell them it is from what the line saves or produces, that they should choose, not the first cost. If one line costs $6 a year and saves $12; another costs $18 and saves $50, they gain $26 a year by having the $18 service. They deceive themselves when they think they save $12 by taking the $6 service.

Again the mutual line the Octopus recommends has no one to look after trouble, and the service can not be as good. Any one wishing to amuse himself by annoying others, has full swing. They are simply farmers' mutuals that is all; and if one member should undertake to locate and stop any annoyance, it only ends in a neighborhood quarrel and makes bad matters worse.

The farmer is fast realizing that he can build or plaster his own house, shoe his own horse, or repair his own watch, better than he can repair his own telephone, because he knows more about them. On the others his poor work bothers none but himself; while in trying to repair his telephone, he frequently ties up the entire line.

When the big man comes, spreads out his blue-prints, and shows them how, by connecting with him, they can talk to Minneapolis, Chicago, and St. Louis, just ask the farmers how many times in the past year any of them have wanted to talk this distance. Have him tell them what the toll charge is for this distance. The few times they have all talked beyond 50 miles will surprise them. They will soon figure out that their daily wants are what count.

Ask the big fellow what they will charge to build and operate the lines as the farmer wants them, and what they do charge where they do build and operate rural lines. It won't take long to figure out what price they must have in one way or another.

Now, in conclusion, let me repeat, and emphasize, you know what your local farmer needs. Give it to him, with good service, and charge a fair price for it. We all know it is better than the mutual company can give, and less than it will cost the monopoly to furnish it.

The farmers' telephone is worth many times what it costs him. Good service is what he wants, and he will pay a reasonable price for it.

He is reasonable, and if you do your part, you can convince him of the facts; then you have your best friend, stick to him.

Washington Railroad Commission Cannot Enforce Physical Connection.

In a formal opinion given to the state railroad commission, W. V. Tanner, assistant attorney general, holds that the commission does not have the power to order a physical connection between two telephone company's lines. While the legislature vested the commission with power to order and direct physical connections between railroad companies, it struck from the same bill the clause giving to the commission power to enforce the same order in relation to telephone systems. The point was raised in Chehalis county, where an application was made for an order to direct a physical connection between two competing telephone lines. Upon the ruling of the assistant attorney general, the railroad commission has denied the request.

Bell Telephone Unpopular at Pittston, Pennsylvania.

Protesting against a proposed increase in rental from the Bell Telephone Company, members of the Merchants Association of Pittston, Pa., held an indignation meeting. It was agreed that if the rate goes into effect the merchants will all order the telephones removed from their business places for a period of one year at least.

Answers from Experience

Locating Trouble in Multiple Cable.

A cable layout is shown in Fig. 1. Suppose several pairs were grounded one side, and we wished to clear this trouble by bridge location. Should we make the loop test on the 1800 feet of cable? Should we make the Varley on the main cable? After determining the distance to fault from the bridge, suppose the distance was 900 feet to fault, would that mean that the trouble was in the first lateral? This is only a hypothetical layout. You can assume any size cable or wire. Yill you please publish a

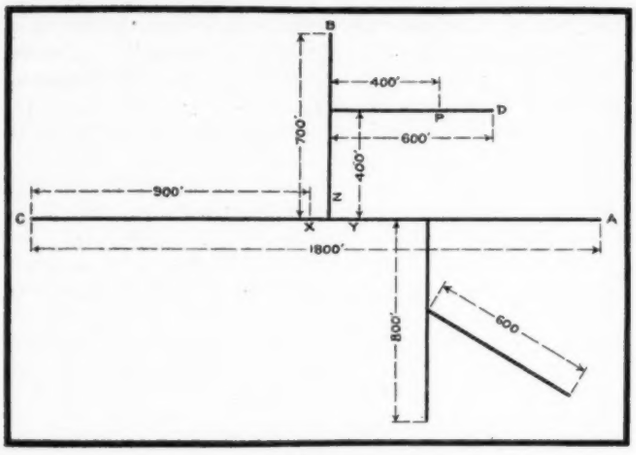


Fig. 1.

method of clearing trouble when you have conditions like this or nearly so?

Your method is correct, but for the purpose of making the method more clear we will assume a definite case.

If the wires are all the same size in all the cables it will be plain sailing. If for any cause you have different sizes, you will have to figure each distance first in ohms, and then reduce the ohms to feet by reference to your records of cable sizes.

Let *C* be the central office, and *P* the point of fault, not knowing where *P* is a helper is sent to *A*, and the Varley loop test or any other loop test which can be used is applied. The result will locate the fault 900 feet out, at the junction of the *B* branch. Then the man is sent to *B* and a second measurement taken. This time the fault locates 1,300 feet out of the office, at the base of the *D* lateral. Lastly the helper is sent to *D* and the measurement gives 1,700 feet, or *P*. This works out very well on paper, but considerable care must be exercised in making careful and reliable measurements and judgment in interpreting the results. When you have figured out your distance it may miss the base of a branch by many feet. This is not necessarily a sign that the fault is not in the branch, for you may have that much error in your work.

Suppose your fault is in the main cable, but near the base of *B* branch. Take *X*, or *Y*, for instance. It figures out so close to the branch that you think the latter is at fault. But when you measure to *B*, the result is 900 feet more or less. Then the trouble is near the splice, and on account of the error in measurements it may be at *X*, *Y*, *Z*, or in the splice itself. Proper care in doing your work will reduce the error.

Rates and Service.

1.—What is the uniform rate charged for residence telephones when giving metallic line service and long distance connections?

What is the uniform rate charged for business telephones when giving metallic line service and long distance connections?

What is the uniform rate charged for residence telephones when giving grounded line service and local connections only?

What is the uniform rate charged for business telephones when giving grounded line service and local connections only?

In obtaining the above information, I would like only towns of about 800 to 1,000 population to be considered in my state.

2.—Taking the average length metallic line giving long distance connections in towns of above size, what is the average cost of constructing, maintaining and operating such a line per year?

Please answer the same question for grounded line giving local service only.

3.—What is the difference in the quality of metallic line service and grounded line service?

Can cross-talk be prevented when operating grounded lines only?

Can cross-talk be prevented when operating metallic lines?

4.—Which is the best kind of service, metallic line service or grounded line service, considering local conditions and all kinds of weather?

If properly constructed, which is the safest and most secure from lightning currents?

5.—Can a telephone company render good service operating a grounded line system where there is an electric lighting system in the town?

6.—Can a telephone company render good service operating a full metallic line system where there is an electric lighting system in the town?

7.—Which is recognized by the most experienced telephone men to be the best standard, grounded line service or metallic line service?

8.—Can a telephone exchange be operated on a fair, living basis when selling grounded line service or metallic line service at the rate of $1.50 per month for residence telephones and $2.00 per month for business telephones?

If so, would these rates be sufficient to maintain an exchange in a town of 800 to 1,000 people, operate the exchange and give good service?

Do you think that $2 per month for residence telephones and $2.50 per month for business telephones is too much, or is an unreasonable rate to charge for either grounded line or metallic line service with long distance connection or without long distance connection in a town of 800 to 1,000 inhabitants?

1.—In view of the fact that an apparently appropriate rate for a plant in one district might result in loss where the local conditions are different, it is impractical to generalize on a case to answer your question. There is in the telephone business too much assumption that a rate can be determined by asking other people what they are charging, and then trying to get along on a little less, or make an undue profit by charging a little more. Where there is an investment of several thousand dollars in an exchange it will pay any board of directors to spend sufficient money to have an expert prepare a report showing what investment will be required initially, and each year for a number of years, to properly develop the territory on the most economical basis; what organization and money will be required for operating and maintaining it; how much will have to be set aside for depreciation reserve, etc. Then there enters the question of the rate which must be paid on bonds, if the plant is bonded, or the dividend which should be paid to stockholders to attract money for development as is required. But determination of these things requires a very careful investigation of local conditions, which may be entirely different in one exchange or group of exchanges from those prevailing even fifty miles distant, and sometimes in the next town.

Our only suggestion to a company which is not definitely informed on these conditions, or familiar with the method of making such an investigation is that the most profitable way to spend a few dollars is to employ an expert consulting engineer to find out just what is right, and get things going on a basis which will be permanently

TO WIRE CHIEFS AND MAINTENANCE MEN.

Clearing of troubles which occur in your exchange, inside or outside, may be made the subject of short, practical letters which will interest other telephone men These TELEPHONY *will gladly publish, if illustrated by diagrams or photographs. Simply write a description of the nature of the trouble, tests and location, cause found, and method of repair. Payment will be made for all letters published.*

profitable. It is a good deal cheaper to spend this sum at the start, and be sure of a definite profit every year, than to run the risk of losing several thousand dollars a little at a time. As your plant is small, if you will co-operate with an engineer you could probably get him to give you a list of questions to answer, and from your answers he could afford to make up a fairly thorough report for $50, perhaps less. You would get the benefit of his advice through several years.

2.—We should find it necessary to have a scale map showing the distribution through the town of your telephones using long distance, and information which would enable us to determine definitely just what method of construction is used. We don't know whether you ought to charge twice as much as the nearest exchange with the same number of subscribers, or can make money for less. It would take a clairvoyant to answer your question. The right thing to do is to take the figures of your own plant and analyze them and get definite facts, if you are trying to put a fair charge on your service. Get down to fundamental principles and apply them to your plant, and you can't go astray.

3.—Metallic line service in an exchange properly built of high grade, modern material, is free from cross-talk and ringing troubles, the existence of which is most exasperating to the average subscriber.

Grounded line service cannot be given extensively without these troubles.

Furthermore, if you expect to connect subscribers on grounded lines to long distance lines, you are bound to give them a poor service, due to the impossibility of getting as good transmission, and the fact that the connection is almost sure to be noisy. Cross-talk can be prevented only by the use of metallic lines properly erected.

4.—The answer to the preceding question shows in detail some of the reasons why metallic line service is far superior to grounded line service. This superiority is especially evident in bad weather. Metallic circuits are likely to cause you less trouble from lightning.

5.—We have never seen one smart enough to do it.

6.—Yes, if its lines are put up by a good construction man and there is a thorough understanding that the electric light company is to co-operate with the telephone company in obtaining a reasonable distance between lines on all new work.

7.—Not only do telephone men recognize that metallic line service is immeasurably superior to grounded line service, but the public is in almost every town coming to the point where it realizes that although grounded line service, such as it is, can be rendered more cheaply than metallic line service, it is glad to pay the difference in cost for the sake of having the superior product. Even rural lines are being equipped with metallic circuits steadily in many parts of the country, because the farmer will not stand for a poor telephone connection.

8.—The answer to No. 1 will apply also to this.

From Judges and Juries

By A. H. McMillan

Obstruction of Access to Abutting Property.

There is a point of law which I wish you would advise through Telephony.

The town board has granted me the privilege, by franchise, to use the alleys and cross the streets to set poles and string wires for telephone purposes. We have built a line of wires down a certain street and it has been there for five or six years, and there has never been a complaint until this last summer when a person put up a building, running back to the alley line. He has put an opening door just where the pole stands. Now, can he compel me, through law, to move that pole, and if he can compel me to move it, who must bear the expense of it, the telephone company or the man who wants it moved? The pole is no obstruction to the use of the alley as a highway.

An owner of land abutting on a highway in which stands a telephone line has a right to pass freely and without obstruction from his land to the street and back again. So long as he is not obstructed in his ingress to and egress from the land, he has no legal cause to complain. Detroit City Ry. Co., vs. Mills, 85 Mich., 634. e Am. Alec. Cases, 333; Patterson Ry. Co. vs. Grundy, 51 N. J. Equity, 213, 4 Am. Elec. Cases, 173. But if the land owner is deprived of the privilege of access to his property he is entitled to compensation for its loss. Mortimer vs. N. Y. Elec. Ry. Co., 129 N. Y., 81; 29 N. E., 5; Donovan vs. Allert, 11 N. Dakota, 229; 91 N. Y., 441; 58 L. R. A., 775. On these principles the land owned would have the right of ingress to and egress from his property in spite of the fact that your pole was in position before he built his building. He can therefore compel you to move it at your own expense. McMillan on Tel. Law, Sec. 91.

State Court No Longer Restrained By Federal.

On March 14, 1904, the city council of New Decatur, Alabama, repealed its franchise granted the American Telephone & Telegraph Co. several years earlier, and on May 3 of the same year ordered it to take out its poles and other portions of its system. On its failure to do so, the city ordered its attorney to file suit in the state courts to oust the company from the streets. The company then asked for an injunction from Judge Jones of the federal court, seeking to restrain the city from taking this action. The city was temporarily restrained from instituting suit and the matter has been before Judge Jones since 1904, but was recently referred to Judge Grubb. The injunction was asked by the telephone company on the grounds that the case involved was one arising under the constitution of the United States. The court held otherwise and the injunction was dissolved.

Use of Streets in Kansas.

Under the Kansas statutes, the right to build a telephone line in and over streets and highways is directly granted by the state, and the mayor and council of a city are powerless to prevent such use. The council has authority to provide by ordinance reasonable rules regulating the use of the streets and alleys for that purpose by defining where and in what manner a telephone company shall erect and maintain its fixtures. It is the duty of a telephone company contemplating the exercise of the right granted by the state, to ask the mayor and council to prescribe reasonable regulations for the exercise of the right before placing any of their poles and structures on the streets and other public grounds of the city; but, if the mayor and council refused to prescribe such regulations upon application, the company may build its lines upon the streets and alleys in such a manner as shall not incommode the public in the use of the streets and alleys so occupied, and the city authorities are not at liberty to treat the structures so erected as a nuisance.

Such were the holdings of the Supreme Court of Kansas in a controversy between the New Hope Telephone Company and the city of Concordia. The company had built and was operating its lines in Cloud county, outside the city, and in 1908 applied to the mayor and council for the passage of an ordinance permitting it to build into and through the city and to fix con-

ditions for the exercise of that right, but the application was arbitrarily refused and the company was denied the right to enter the city upon any condition whatever. The company built into the city without permission and commenced to do business. Two days after the city officers cut down the poles, but the company set them up again and applied for an injunction to restrain the city from further interference. A restraining order granted against the city was set aside by the district judge, who, at the same time, enjoined the company from maintaining a line in the city limits. The decision of the Supreme Court reverses and sets aside the order of the district judge and establishes the right of the company to do business in the city. New Hope Tel. Co. vs. City of Concordia, 106 Pac., 35.

Issuance of Directories Enjoined.

At Fort Worth, Kansas, the J. J. Langever Service has asked the district court to restrain by injunction the Southwestern Telegraph & Telephone Company from issuing its new directories because the name Langever appears in connection with the name of a competing company. If the injunction is granted the company will be forced to suspend the distribution of 9,000 directories and the 5,000 already distributed will have to be recalled. The telephone company estimates that the granting of the injunction will cause it a loss of $5,200. At the outset the telephone company asked that the case be transferred to the United States District Court on the ground that it was a citizen of New York. The application was overruled for the time. The suit is the outgrowth of a trade name warfare which has been carried on by rival concerns for three years. J. J. Langever, organizer of the J. J. Langever Company, sold his stock in the enterprise to J. V. Gillespie, who continued to operate under the name "The J. J. Langever Company, Incorporated." Langever organized the Langever service. He alleges that he recently paid the rival concern $100 to abandon the use of his name in its advertising. In the new directory the company appears as the Langever Paint & Paper Company, and it is to this use of his name that the plaintiff objects.

Are Pennsylvania Companies Exempt From School Taxes?

At Harrisville, Pennsylvania, action has been brought in the Dauphin County court by the Bell Telephone Company to prevent the city of Harrisville from collecting city or school taxes. The telephone company contends that it is a public service corporation, paying a state tax, and therefore, like lighting companies, street railway companies, etc., exempt from all local taxation except state capitol taxes.

Manitoba Telephone Report for 1909

The report of the telephone commissioners for the year 1909 was laid on the table of the Manitoba legislature last week by Hon. Robt. Rogers, minister of telephones and telegraphs. Mr. Rogers made no remarks on the report, which read as follows:

"Your telephone commissioners respectfully submit their second annual report, for the year ending December 31, 1909. During the year 53 new agencies have been added. The system now comprises a total of 233 agencies connected together with long distance pole lines, as compared with a total of 180 agencies at the commencement of the year and 140 when the system was purchased two years ago. These agencies comprise 88 exchanges and 145 call offices; 362 miles of long distance lines have been added to the system, 137 miles of which are on new pole lines constructed for the purpose. This now makes a total of 5,180 miles of long distance lines. When the system was taken over there were 3,350 miles, an increase in three years of 1,380 miles. The number of subscribers now connected with the system is 25,300, of which 3,900 are owned and operated by different municipalities. In addition to this 3,900 (which serve entirely farmers in rural districts), the government has 3,300 rurals, making a total of 7,000 farmers receiving service, leaving a total of approximately 18,000 subscribers in the villages, towns and cities.

"Of this total number 5,000 were added this year, an increase of approximately 11,000 subscribers to the system since owned and operated by government.

The total annual revenue from all sources is now $788,444, as compared with $648,000 for the previous year, an increase of $140,444. This revenue is composed of the following:

	1909	1908
Rentals	$563,125	$475 361
Long distance tolls	198,812	153,014
Local toils	26,507	19,657

These additions to the system have involved the expenditure of $968,035.22 on capital account, but with a further expenditure this year of $82,000 to complete rural lines built last year approximately 2,000 more subscribers will be added, thereby increasing the annual rental by $40,000. Total capitalization of the system to date is $5,102,977.78.

"The necessary maintenance and repairs have been made to the system, thus sustaining it in a high state of efficiency; the expenditure in this way alone amounts to $170,000, covering material, labor, and expenses, and your commissioners do not hesitate to say that while the government system surpasses many other telephone systems in point of equipment and efficiency, it is second to none.

"The reduction of rates which was put into effect last April, reduced the annual revenue on the contracts existing at that date by $45,237.56. Of this amount $9,876 applies to the farmers' rural line service; the reduction for this class of service being from $24 to $20 for the year.

"While the applications for farmers' rural line service were numerous at the old rate, the number was greatly increased by the reduction previously referred to. A total of 5,000 applications were received during the year, but owing to many of them being widely scattered, it was only possible to approve for installation 3,874.

"It was not until after the reduction in April that it was possible to ascertain the number of new subscribers it would be necessary to lay out work for. Securing signatures to the applications and laying out the work and getting material on the ground occupied several months. As the applications came pouring in it was deemed necessary to lay the work out on a large scale in order to take care of the demand in the near future, as well as for the present, and it is principally on this account that a larger proportion of the applications have not been placed in service during the year. However, it will take but the expenditure of $82,000 to connect up the balance of the approved applications.

"As evidence of the facilities for taking care of long distance business, the increase in revenue for 1909 is very satisfactory. It will, however, be necessary to extend this part of the system considerably during 1910, by increasing the number of circuits and by extensions into new territory.

"A new exchange building has been erected in the City of Portage La Prairie, and the installation of a new common battery switchboard is just about completed and is to be put into serice on March 1. In order to install this system it was necessary to rebuild the outside plant, and add there-

to considerable aerial and underground cables. When completed this will give the subscribers at Portage La Prairie the very best equipment and service. This change was found necessary on account of the old system and premises being entirely outgrown.

"In the City of Brandon it was found necessary to install a new switchboard in order to take care of the long distance traffic centering at that point. This has been completed and has effected a vast improvement on former conditions.

"In the city of Winnipeg we now have 12,717 subscribers' stations in use. This is an increase of 2,654 over the year 1908 and 3,541 more than when the system was purchased. The new branch exchange at Fort Rouge was put into service in March, 1909, with 900 subscribers, which has since grown to 1,300, and thus commenced the multi-office exchange service for Winnipeg. Another branch exchange building has been commenced, located on Sherbrook street near Portage avenue. This exchange will have an ultimate capacity of 10,000 lines, and it is expected it will be ready for service about August, 1910.

"Plans are also being prepared for a third branch exchange, to be located in the telephone building corner of McDermott and Charles streets, which will also have an ultimate capacity of 10,000 lines, and will be cut into service at the same time as the Sherbrook exchange.

"Plans are also being prepared for another new building on the property now owned by the government at the corner of Burrows avenue and Salter street. This exchange will have a capacity of 5,600 lines, but will not likely be required till 1911; when this is completed the exchanges in the City of Winnipeg will have a capacity of 40,400 lines.

(Signed) W. H. Hayes, Comissioner Engineer; H. J. Horan, Commissioner Auditor; F. C. Paterson, Chairman, Commission.

Financial Statement.

The following figures of receipts and expenditures accompanied the report of the telephone commisisoners:

Receipts outstanding as at December 31st, 1909:		
Rentals	$ 46,800.06	
Tolls	13,189.72	
	$ 59,989.78	$ 59,989.78
Revenue for the year:		
Rentals	$543,192.10	
Local tolls	26,660.00	
Long distance tolls	201,437.31	
Interest	3,540.71	
Rents from real estate	250.00	
	$775,080.12	
Less cash in rebates in consequence of reduction:		
In rentals after April 1st	$ 8,102.30	
Amount written off owing to cancellation of contracts:		
Irrecoverable amounts	9,834.85	
Whereof earned	$ 1,956.33	
Unearned	7,878.52	
	$ 9,834.85	$ 17,937.15
Revenue for the year		757,142.97
		$817,132.75
Deduct outstanding as at Dec. 31, 1909:		
Rentals	$ 39,454.82	
Tolls	21,684.94	
Interest	1,983.82	
		$ 63,123.58
Cash revenue		754,009.17
Expenditure for operation and maintenance of system for the year ending Dec. 31, 1908-1909:		
Balance brought from year 1908.	$ 27,418.45	
Less uncollectable accounts:		
Amount 1908, deduct from revenue	5,722.13	
	$ 21,696.32	
		$ 21,696.32
Expenditure for years, operating:		
Rent, light, heat	$ 13,931.77	
Salaries, com., and mess. service	190,545.44	
Traveling expenses	1,253.80	
Postage and telegrams	1,583.84	
Stationery	6,906.80	
Incidentals	5,355.85	
	$219,577.50	
Directories	10,454.04	
		$230,027.54
Maintenance:		
Right of way	$ 1,159.75	
Material	57,330.03	
Teaming, freight, etc	4,057.66	
Labor	82,483.62	
Board and traveling	27,081.14	
Incidentals	1,074.45	
		$173,123.65
General:		
Salaries	$ 32,605.55	
Traveling	1,818.84	
Stationery	1,292.49	
Head office building upkeep	1,013.35	
Incidentals	1,783.56	
	$ 38,513.79	
Insurance	11,961.52	
	$453,626.50	
Interest on overdraft on bank	6,889.10	
		$ 460,515.60
		$ 482,211.92
Capital expenditure, year Dec. 31, 1908-09:		
Balance on construction account with dept. to Dec. 31, 1908		113,750.66
Expended in construction—toll and exchange lines and equipment of exchanges for year 1909:		
Amount per summary	$959,642.13	
Tel. system of Muni. of Turtle Mountain purchased	8,784.85	
		$ 968,426.98
		$1,082,177.64
Expenditure on real estate		90,149.41
		$1,172,327.05
Less value taken over by com		204,291.83
		$ 968,035.22
Expenditure for construction of toll and exchange lines and exchange equipment for year, Dec. 31, 1908-09		912,693.80
General expenses		46,948.33
		$ 959,642.13

Summary.

Operating	$212,441.50	
Maintenance	173,123.65	
		$ 385,565.15
Construction		787,409.45
Cash on hand		12,231.89
		$3,041,134.34

Subscribers Object to Deferred Completion of Calls.

Residents of Alameda, Cal., are circulating a petition which will be submitted to the Pacific Telephone and Telegraph Company, asking for the discontinuance of the system whereby "central" takes the telephone number of a subscriber and calls later if the line asked for is busy.

This new rule, which went into effect about two months ago, is said to be the cause of most of the delay in getting "Central" when a subscriber takes down the receiver to call a number. The rule was put into effect to accommodate subscribers, but there is general opposition to it throughout the city.

When a line is busy the operator is obliged to take the caller's number and make a record of it, with the number asked for, on cards that are given to each operator in the office. The time taken in making these slips out and watching to determine when a line is not busy and then calling the subscriber is said to be the cause of delay that is being experienced.

Subscribers say they are more annoyed than otherwise by the call to the telephone after they have been told the line is busy and prefer the old system where they call again when a few minutes have elapsed.

Cost of Construction Service Telephone Line in Cuba*

The following costs relate to a telephone line constructed in Cuba in 1908 during the building of the $800,000 water-works for the city of Camaguey. The line was constructed similar to the lines built by the U. S. Reclamation Service in the west for its irrigation projects. It was the intention to use the line to facilitate the construction of the pipe main and reservoir and on completion the telephone would serve as a permanent means of communication with the reservoir and pumping plant, the latter being located about 15 miles north of the city.

The labor consisted mostly of Spaniards, some Cubans and a few Jamaicans. The latter were used mostly in the pole raising gangs. One method of raising poles is shown in the accompanying engraving. As the poles were of tions of the line they were rasied by means of a small gin-pole with block and tackle. The following description of the work is taken from the report made in the department at the time:

View Showing Method of Erecting Poles on a Telephone Line in Cuba.

The telephone line extends from a temporary station adjacent to the site where will be built the pump house for the Camaguey water-works to the office of the department of public works in Camaguey, a distance of about 25 kilometers or 15 miles. The portion of the line here considered comprises the main line, extending from the pump house site to station 1,040 of the pipe line, at which point the pipe line leaves the right of way and enters the road in the outskirts of the city, being a length of 20,934 km. It also includes two 4 wire branch lines, having an aggregate length of 0.283 km., which are considered, as required by the specifications, as equivalent to 0.566 km. of 2 wire line. The 4 wires on the branch lines are supported on hardwood cross arms, thus permitting the use of but one line of poles for each branch. From the pump house the line follows the right of way of the pipe line to a point about 15.7 km. distant, where it follows the public road for 1.1 km., again entering the right of way and following it to the above mentioned station 1,040.

The line is a two wire metallic circuit of No. 12 B. & S. gage hard drawn copper wire, supported on oak brackets with glass insulators. The brackets are each nailed to the poles with two 6 in. galvanized iron cut nails.

The poles are of jiqui, arabo, tengue and jucaro prieto, all of which are durable hardwoods found in the country. A total of 131 jiuqui poles were shipped from Ciego de Avila, 60 miles west of Camaguey, by rail and delivered by sub-contract for $3 f. o. b. Camaguey. These poles were hauled from the cars and distributed along the line by mule teams, costing $6 per day with driver. The cost of $0.569 shown below was the actual cost per pole. A total of 333 poles were purchased from farmers living in the vicinity and were delivered along the line for $3 per pole. They were hauled on ox carts an average distance of about 10 miles.

The poles were spaced 46 ms. (161 ft.) apart except where road crossings required a 60 m. (197 ft.) span, or where angles in the line made it necessary to shorten the span. Guys of ⅜ in.steel cables were used to guy poles at angles in the line when the throw was more than 3 m. (10 ft.) and when the poles were not considered sufficiently firm. Short anchor posts 1.2 m. long were set in the ground 1 m. and the cable fastened by means of a threaded eye bolt passing through the post. The poles were 7.5 m. (25 ft.) long except at road crossings, where 9 m. (30 ft.) poles were used, and all were placed in the ground 1.5 m. (5 ft.) and thoroughly tamped in place, 3 men tamping to 1 shoveling. No poles whose least diameter was less than 5 ins. were used.

The holes for the poles were dug by sub-contract, and as there was no foreman with the gang doing the original work, many holes were not dug in line and had to be redug. The majority of the holes were in hardpan and in earth filled with loose rock and boulders, a few being in rock requiring explosives, and some in earth. If the work had been done more rapidly and with a better organized gang it would have been possible to have reduced the labor charges by one-third.

The costs following the actual construction charges, covering all labor and materials necessary for the work as well as tools. They do not, however, include the contractor's charges for office expense, bond, insurance and other general expenses for the main contract. All prices are reduced to U. S. currency. The contract price for the work was $200 per km.

The cost of setting poles was as follows: :

Labor:	Total.	Per pole.
8 days superintendent at $150 per mo.	$ 40.00	$0.0859
2½ days timekeeper at $2.31	8.08	0.0174
7 days foreman at $2.31	16.17	0.0348
19 days foreman at $1.50	28.50	0.0614
220 days laborers at $1.15	253.00	0.5452
Total labor	$345.75	$0.7447
Materials:		
131 poles f. o. b. Camaguey at $3	$393.00	
Hauling 131 poles at 56.9 cts.	74.56	
333 poles delivered on line at $3	999.00	
Total	$1,466.56	$3.160
Grand total	$1,812.31	$3.9097

The cost of poles per mile of line was $25.88 for labor and $109.77 for materials or a total of $135.65.

*Rearranged from data furnished by Henry A. Young, late Chief Engineer, Camaguey Water Works, Cuba, 200 Warburton Ave., Yonkers, N. Y. Reprinted from Engineering-Contracting.

There were 464 holes dug for poles at the following costs:

Labor:	Total.	Per hole.
11 days superintendent at $150 per mo.	$ 55.00	$0.1185
6 days timekeeper at $2.31	13.86	0.0298
35 days foreman at $2.31	80.85	0.1742
1 day foreman at $1.50	1.50	0.0032
248½ days laborers at $1.15	285.77	0.6158
Total	$436.98	$0.9415

As there were 13.36 miles of line, the cost per mile of line for digging poles was $32.71.

The cost of squaring poles, roofing and painting roofs of poles was as follows:

Labor:	Total.	Per pole.
7 days superintendent at $150 per mo.	$ 35.00	$0.0728
8 days foreman at $2.31	18.48	0.0398
76½ days laborers at $1.15	87.98	0.1896
Total	$141.46	$0.3022
Materials:		
37 gals. paint and oil at $1.30	$ 48.10	$0.1040
Grand total	$189.56	$0.4062

The cost per mile of line was $10.59 for labor and $3.60 for materials, a total of $14.19.

The cost of stringing wire was as follows:

Labor:	Total.	Per mile.
2 days superintendent at $150 per mo.	$ 10.00	
18 days foreman at $1.50	27.00	
28½ days lineman at $2.25	64.12	
2 days lineman at $1.50	3.00	
86 days laborers at $1.15	98.90	
5 days mule cart at $1	5.00	
Total labor	$208.02	$15.57
Materials:		
2,965 lbs. No. 1 copper at 23.15 cts.	$686.40	
950 oak brackets at 4 cts.	38.00	
950 glass insulators at 7 cts.	66.50	
100 lbs. No. 6 galv. iron wire at 4 cts.	4.00	
250 lbs. cut nails at 5 cts.	12.50	
910 ft. steel cable guys at 1.51 cts.	13.74	
35 galv. iron clamps at 15 cts.	5.25	
35 iron eye-bolts at 10 cts.	3.50	
60 lbs. No. 14 soft copper wire at 23.15 cts.	13.89	
		Per
Total	$843.78	$63.16
Grand total		$78.73

The cost of tools was $38.26 or $2.86 per mile and general or camp expenses were $59.47 or $4.45 per mile. Summarizing, the cost per mile of line was as follows:

Item:	Per mile.
Digging holes	$ 32.71
Squaring poles, etc.	14.19
Setting poles	135.65
Stringing wire	78.73
Tools	2.86
General	4.40
Total	$268.59

The work was done under the direct charge of Mr. E. K. Knight as resident engineer, with Mr. Henry A. Young as chief engineer.

An Up-to-Date Parrot.

A parrot, "Dewey" by name, who converses freely over the telephone, is the valued possession of Mrs. Peter Geimer, Newark, N. J. Dewey is a very bright bird in every way, having learned to sing to piano accompaniment, umpire ball games, etc., and when the telephone was first installed in his owner's home he immediately became very much interested, says the Newark *Call*. Whenever he is given his liberty from his cage he hops upon the telephone set, takes the receiver off the hook and in response to the operator's "Number, please," answers back somewhat in the following language: "Hello, Central! What number do I want? Whaaat?" etc. Mrs. Geimer's son, who owns a drug store, was interrupted on one occasion when he was quite busy, and his patrons very much amused by a conversation heard when the druggist picked up the receiver in response to a call from central, which run somewhat as follows:

"Hello, Adolph!"

"This is Dewey! Dewey!

"Thought this about the best time to call you. Said yesterday between 1 and 2 was the only time you breathed! Send me

The Parrot Dewey and His Telephone.

over something for a headache, and don't forget a few chocolates."

At this point he was cut off by central, and much like the average telephone user flew into a terrible rage.

Average Term of Service of Chicago Operator.

Much comment has been aroused by newspaper publication of a report from Washington to the effect that government statistics show 92 per cent of telephone operators unmarried. Some one seems to have tried to tease the girls by pretending that the horrid old government meant to say that they couldn't get married. Every telephone man would be glad to refute such an unwarranted slander, if it came in definite form. But even as it is, Chicago has at least one gallant defender of the telephone girl, in Mr. H. N. Foster, superintendent of traffic of the Chicago Telephone Company, who is quoted by a newspaper as follows:

"We have about 3,800 operators in Chicago. They remain with us on an average nearly three years. In fact, theoretically the entire force changes in that period. And practically every girl who leaves, leaves to be married. Some say they are 'going to other cities,' but a little inquiry among their friends reveals that, all the same, their intentions are matrimonial. Marriage is the bane of the service.

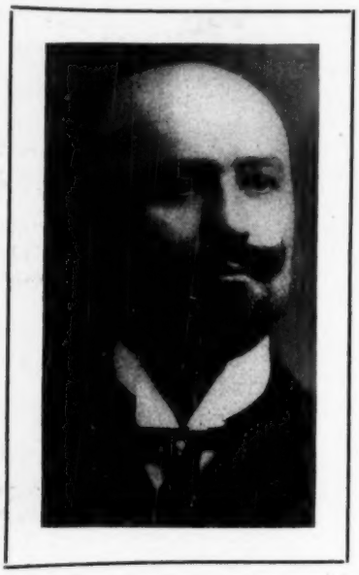
"It really seems as if we are only educating girls to become the wives of a lot of lucky fellows."

A Correction.

In the article on the Home Telephone company of St. Joseph, published in last week's TELEPHONY near the foot of the second column on page 248, appears the statement that $300,000 more bonds come out as soon as 2,500 telephones are installed. The figures should read 6,500 telephones, as the $300,000 bonds are to add 2,500 more telephones.

Grand Opera by Wireless

Interesting experiments with the De Forest system of wireless telephony have been carried on in New York City with a view to determining whether it is practicable to transmit music by this method. The experiments were carried from a transmitting station on the stage of the Metropolitan Opera House. Efforts were made to transmit music as far as



Dr. George Seibt.

Boston and receiving stations were set up in several parts of New York City. On the Royal Mail steamer Avon 260 guests were assembled and listened to Caruso's voice reproduced by wireless telephony.

The transmitter employed was the loud speaking instrument used in the "Dictograph," as made by the General Acoustic Company, which is managed by Mr. K. M. Turner.

Dr. De Forest reported that although it had been intended to continue the transmission of the music for the entire nq to continue the transmission of the music for an entire week, it was necessary to abandon the experiments temporarily because the first test brought out several weaknesses in the methods used, including the difficulty of using the ordinary loud speaking transmitter such as the dictograph employs for the transmission of notes uttered perhaps 300 feet away from the transmitter. According to Dr. De Forest, at least 90 percent of the volume of the voice was lost before it reached the transmitter. It is said that experiments will be resumed within a few weeks, with apparatus designed especially to do away with the great loss hitherto experienced in transmitting from the stage to wireless apparatus. As soon as the system is developed so far as to really satisfy the inventor, wireless opera will be furnished to the public.

Satisfactory results were obtained at the stations where the Marconi magnetic detector was used, but not a failure to get a greater portion of the music took place where the receiver was equipped with the audion, Dr. De Forest's well known invention. This sensitive device was included in the apparatus in the inventor's laboratory at the Old Terminal Building, 103 Park Row, and the Metropolitan Tower Station, as well as at the Hotel Breslin and the Radio Telephone Company's factory over in Newark. "All these stations got encouraging results," said Dr. De Forest, "although there was some interruption at the Hotel Breslin where only a temporary antenna, thirty feet long, was used, owing to deliberate and studied interference from the operator of the Manhattan Beach station of the United Wireless Company. All other wireless stations courteously refrained from unnecessary demonstrations of their power and the Marconi Company was especially courteous in placing special equipment on board the 'Avon,' anchored off 13 Street in the North River."

The wireless transmitting apparatus included the standard Radio telephone, a photograph of which is shown. Between the acts Dr. De Forest made various announcements, speaking directly into the transmitter, which were heard by a score of stations which were unable to get the music."

Dr. Seibt, who recently came to America from Berlin where his skill in wireless development is admired, is collaborating with Dr. De Forest in the perfection of the wireless telephone. The day after the experiment Dr. Seibt said, "I consider the results of this first demonstration of its kind as full of promise for the future. Our greatest difficulty proved to be merely mechanical defects in the system used for transmitting the music to the wireless apparatus. We will overcome this probably by placing the wireless transmitting microphones on the stage with some simple magnifying device for gathering the sound waves, and with the solution of this one problem I cannot see why we should not reasonably expect to transmit the entire audible part of the opera in such volume that it can be received in a room miles away as strong and clear at least as the music from our present phonographs."

Following is a brief description of the latest type of De Forest Radio telephone:

During the last eighteen months Dr. De Forest has been developing an entirely new type of electromagnetic wave sender, radically different from the arc type which has heretofore been used by himself and some other experimenters. The new "Oscillator," as it is called, is operated from a D. C. source of 600 volts, in series with a resistance. The oscillator is said to require no attention other than the closing of a switch to start it. The electrodes are both of metal, constantly renewed, never in contact, perfectly cooled. No hydrogen, or hydro-carbon gas or vapor whatsoever is employed.

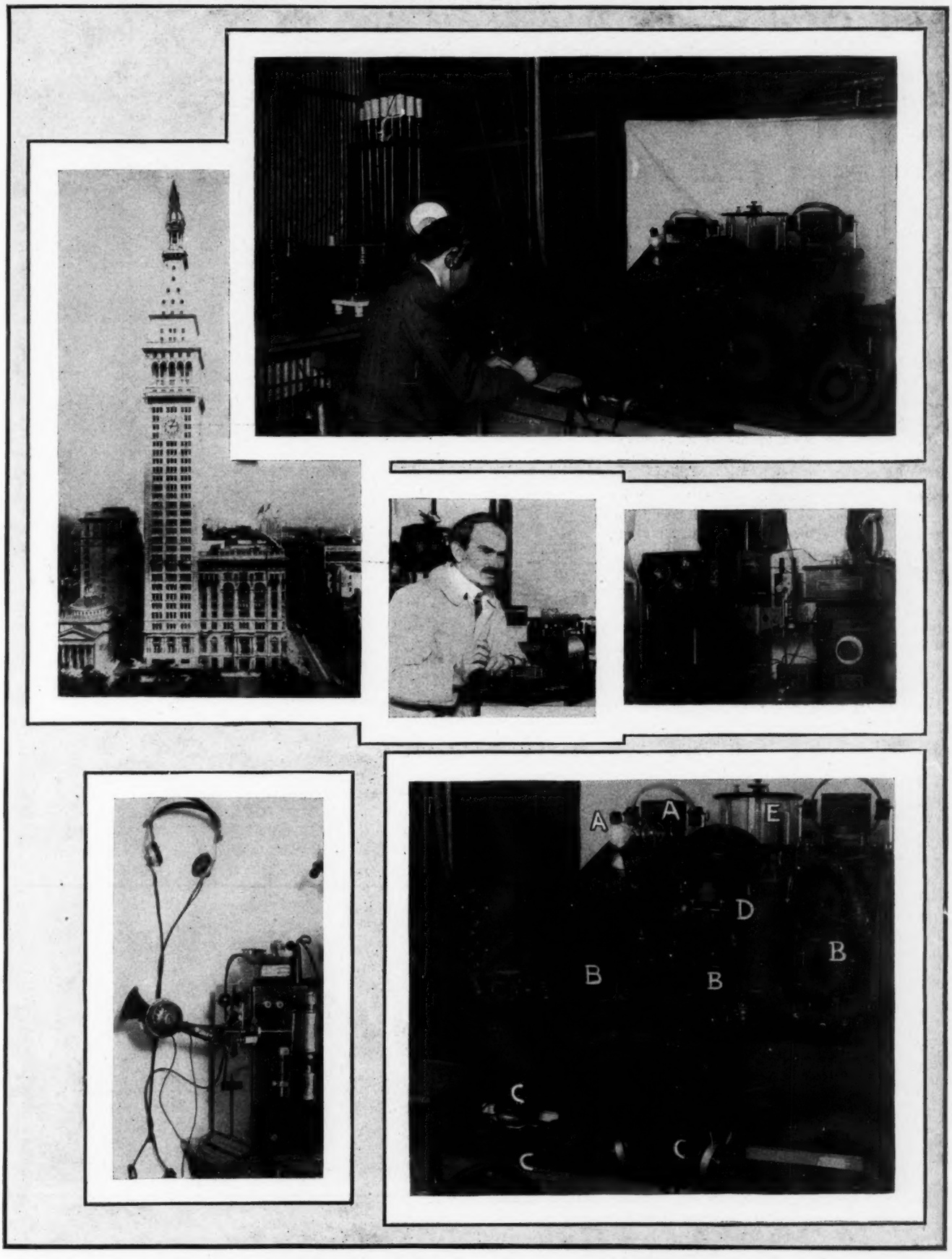
The wave-length of the oscillation thus set up is reported to remain absolutely constant without which it was always impossible to be sure that the receiving apparatus would be set at the proper position, during a prolonged conversation.

In addition to being constant in wave-frequency and free of necessity of adjustment, the oscillator operates even more quietly than the smooth burning arc, so that at a little distance the only sound heard in the receiver is that of the voice itself.

A simple water-circulating system is combined with the apparatus, and this is made further use of to keep the two microphones of the transmitter perfectly cooled.

Dr. De Forest has developed a water-cooled microphone transmitter which while allowing exactly as clear and free articulation as the non-cooled type, can still carry 2 to 4 amperes high frequency current for any length of time without any appreciable rise in temperature. This has, therefore, done away entirely with the bad "packing" and baking of the best non-cooled transmitters, and enables one to speak into the transmitter for any length of time desired, without having to stop occasionally to shake up the granules, and with undiminished intensity of voice and clearness of articulation.

The condenser is smaller and lighter than previously. The same form of primary and secondary coils that were found so efficient and convenient in tuning, together with the easily adjustable loose-coupling arrangement, are retained but with many mechanical improvements which have been worked out as a result of the long experience the Radio Telephone Company has now had with these instruments. The little index lamp and handy "listening-key" are retained.



THE WIRELESS TELEPHONE AS USED FOR TRANSMITTING GRAND OPERA IN NEW YORK CITY.

Operating Room of the Wireless Telephone Station in the Metropolitan Tower. Antennae Reach 700 Feet in the Air; The Metropolitan Life Building, New York, in the Tower of Which Press Representatives Listened to Caruso over the Wireless Telephone; Dr. DeForest at the Transmitting Apparatus for Sending Opera by Wireless; DeForest Radio Apparatus Installed in Director Dippel's Office at the Metropolitan Opera House, New York; Triplex Receiving Machine Which Takes Simultaneously, Messages from Three Different Stations Without Interference; AA are the Audion Detectors, BBB, Tuning Scales, CCC, Telephone Receivers, D, Perikon Detector and E, the Seibt Condenser.

Each transmitting instrument can be set to send out any one of six different wave-lengths, covering a wide range, and an additional coil enables practically any wave-length to be obtained, where a greater flexibility is required.

Dr. De Forest has done away entirely with the original "chopper" device for calling purposes and telegraphing. In place of this an adjunct is provided having no moving parts whatever and which merely by throwing of a switch transforms the telephone int a telegraph instrument which gives at the receiving station a high, clear musical note, about 1,000 vibrations per second.

The signals are controlled by a small Morse key, at whose contacts is no appreciable spark. This allows of as high a speed of telegraphing as any operator can attain, while the fine singing quality of the note emitted, coupled with the wonderful tuning qualities of the undamped waves, enables one to read the signals through severe and multiplied interferences.

The wave here, the same as when telephoning, is undamped, and the tuning therefore, remarkably sharp, when a "loose-coupling" is employed at the receiver.

The same receiving apparatus as is supplied by the Radio Telephone Company, for its new "hy-note" wireless telegraph is employed for the telephone, so that duplicate plant here is not required. Two detectors, the De Forest Audion and the Seibt "Radion" are furnished. The former is now universally accepted, here and abroad, as a satisfactory detector for the Radio telephone. This because of high sensitiveness, reliability, and freedom from "upset" by strong sparks requiring renewed adjustment. The Radion is for use with stronger signals, telephone or telegraph. Sensitive telephone head receivers are employed.

The tuning devices are immense improvements over those originally employed in the Radio telephone system.

Th variometers and loose-couplings are designed to give minimum of damping losses with maximum inductances, and convenience of manipulation and simplicity. Each conductor is built up of 35 to 84 strands of copper wire, separately insulated, and braided together. Coils are wound on ebonite or seasoned hardwood, dial-indexed and calibrated. The variable condensers are of the finest possible construction, aluminum semi-circular plates, accurately spaced, air dielectric, enclosed in glass or hardwood cases, as specified, carefully calibrated.

Where the radio telephone is to be used by laymen and non-experts it is sometimes desirable that the tuning of the receiver shall be more simple and less exact. This allows also that a listener may hear any station within range, with but little adjustment of the tuner.

For such purposes the receiving circuit is modified so that the listener by turning a handle, covers the range of wave-lengths which his instruments will receive.

With ½ k. w. the range of the new telephone is stated to be from 50 to 100 miles, depending on the height of masts, and nature of the intervening country, although as a matter of fact these distances are not commonly attained.

The Broader View.*

By George B. Cortelyou.

You put the people in a position to be just and fair when you are frank with them. They know that men cannot be expected to engage in the lighting industry, any more than in any other, that capital is not attracted to business undertakings, unless a fair profit is assured, and unless initiative and inventive genius and business sagacity shall have ample room for their expression and for their reward.

Great as America is among the commercial nations of the world we shall yet stifle her growth and injure her producers and consumers alike if we put too severe restrictions upon these elements essential to her prosperity.

Let there be the safeguards of regulation or supervision, or whatever may be the designation of that official oversight which honest men need not fear and which, if intelligently and fearlessly exercised, can do justice to corporation and citizen alike.

But let it be clearly understood that supervision does not mean management and that you can not put unjust burdens or unjust limitations upon the corporation and in the same breath exact the best service and the lowest rates.

Speaking broadly, I firmly believe that, in the first instance, the public is much more concerned in the character of the service it receives than in the precise rate it pays for such service; and I wish that in the proper regulation of our corporations this consideration might receive greater weight.

What I am saying is certainly plain enough to admit of no misconception, but I will put it in another form to make misunderstanding impossible. What the public wants and must and will have are efficient service, fair and impartial treatment, and such degree of publicity of corporate business affairs as will leave no reasonable man in doubt that the relation between the corporation and the public is one consistent with the rights of both.

I believe that immeasurably the greatest immediate benefit that can come to public utility corporations will be through taking the people into their confidence. When they have done this they have impregnable ground from which to defend themselves against unjust attack.

Then there is the employes' part in your business. Good business management pre-supposes such regard for the welfare of employes, such recognition of their loyalty and efficiency as can be properly given, and the encouragement of such friendly competition as shall draw out the best in the individual worker, make him realize that his work counts, that he has his place to fill, and that, while he may be only a part of a great machine, still a portion of the business success and of the public regard is due to his own efforts.

*Abstract of an address delivered before the National Commercial Gas Association at New York, Dec. 14, 1909.

Telephone Lines in Mexico.

In Mexico, as in Texas, long distance lines are frequently constructed along a railway right-of-way parallel to the rails. This method presents many advantages in the way of a direct, clear route, and affords means of making decided economies in construction.

Telephone Construction Beside a Railway in Mexico.

The appearance of a typical section of railway carrying telegraph lines, Bell lines, and an Independent lead, the latter distinguished by the high poles and clean-cut construction, is here presented.

Letters on Practical Subjects

Good Ground and Insulation Cleared the Trouble.

As there is an experience meeting on cross-talk and cross-ringing, I will give mine. Perhaps it will help somebody. About a year ago I was called on to clear an exchange of cross-talk and subdue cross-ringing. I found that there were fifty grounded lines connected to the board. From the second pole to the first pole, a distance of 20 feet, there were both copper and iron wires, with all kinds of poor insulation. From the first pole to the office, lines went through 20 feet of 50-pair rubber insulated lead cable. Lines were grounded at this pole with one six-foot, one-half inch rod, giving a metallic line through cable. The cable had been ruined by heavy lightning, but the company refused to get more cable, so I set a pole with five 10-pin arms within six or eight feet of the office, extended all line wires to this pole with No. 14 bare iron wire, used Okonite No. 18 copper wire from the pole to distributing frame, and drove four more six-foot ground rods, dividing the load, 10 lines to each rod. Until we drove the extra ground rods a subdued ringing noise could be heard in the telephones.

This leads me to think that a good moist ground, and good insulation will clear most cross-talk and ringing trouble, as nearly as can be on grounded lines, when high power currents are not to be considered.

Benton City, Mo. Frank E. Miller.

Trouble with Grounded River Spans.

We have four metallic farmer lines crossing the Ohio river at this point. Two years ago three of the wires broke down and, owing to the condition of the river, we were compelled to work three lines grounded or cut some subscribers out of service for an indefinite time. We grounded the broken lines to guys on each side of the river and had what we thought a good ground.

In a couple of days these lines rang and talked "crossed." As an experiment we drove a six-foot ground rod for two lines and soldered the joints well, leaving the third line soldered to the guy. This was done on each side of the river and cut out the cross-ringing and almost all cross-talk. One good ground may have been enough, but good grounds are not easily made on rocky river banks.

C. W. Kugelman, The Portsmouth Tel. Co.

Portsmouth, Ohio.

Accounting Forms Which Provide a Useful Classification of Income and Expenses.

Accounting forms which seem to be an improvement over those of many exchanges have been originated by Mr. Walter S. Rowe, president and general manager of the Great Western Telephone Co., Philip, S. D. In response to an invitation to tell the readers of TELEPHONY some of their good points, he writes:

"During my telephone experience I have at times felt the need of an accounting system whereby a proper classification of receipts and disbursements may be made, so that at any time one may at a glance see where the money goes, whether it is reinvested for new construction or used extravagantly in maintenance or operation.

"Commonly speaking, I believe a telephone system is operated in the most loose-jointed manner of any business with the same amount of capital invested, for the reason that there are so many ways for expense to creep in which are unnoticed at the time. As there is usually no bookkeep-

FORM "A"

CASH RECEIVED

Date	Ledger Page	By Whom Paid	From What Part of System	Exchange Rentals	Rural Rentals	Tolls, Gross or Net	Messenger Fees	Service Connections	Sales from Warerooms	Sales of other Property	Stock Sold: Number of Certificate	Stock Sold: Preferred	Stock Sold: Common	Stock Sold: Bonds	Borrowed Money
		Brought Forward													

FORM "B"

CASH PAID OUT

Date	Ledger Page	To Whom	For What Portion of System	Check Number: Wire Room	Check Number: Cash	Amount of Cash Check	Cr. By Consignment to Warerooms	Dr. To Consignments from Warerooms	CONSTRUCTION: Promoting	Formation	Franchises, Rights of Way	Grounds	Buildings	Outside Line Material	Inside Station Equipments	Central Office: Equipment	Central Office: Furnish'gs	Tools	Teams and Equipment	Labor	Team Hire	Board of Men and Teams	Railroad Transportation
		Brought forward																					

FORM "C"

CASH PAID OUT

Date	Ledger Page	To Whom	For What Portion of System	Cash Ch'k No.	Amount of Check	OPERATING: Salaries: Officers	Salaries: Each'ge Cpts.	Salaries: Toll Oprs.	Salaries: Each'ge Linemen	Salaries: Toll Linemen	Mess'g'r Service	To Bal. other Line Tolls	Ass. Sol. and Bus. Ags. Each'ge	Ass. Sol. and Bus. Ags. Toll	Pig., Adv. & Stat. Each'ge	Pig., Adv. & Stat. Toll	Batteries & Supp. Each'ge	Batteries & Supp. Toll	Rentals: Each'ge	Rentals: Toll	Heat, Light, Water: Each'ge	Heat, Light, Water: Toll	Taxes & Insur.: Each'ge	Taxes & Insur.: Toll	Legal: Each'ge	Legal: Toll
		Brought Forward																							

FORM "D"

CASH PAID OUT

Date	Ledger Page	To Whom	To What Portion of System	Cash Ch'k No.	Wire Room Check No.	Amount of Cash Check	Debtor to Wire Room	MAINTENANCE: Building Repairs	Outside Line Repairs	Inside Station Repairs	Central Office: Equipm't Repairs	Central Office: Furnish'g Repairs	Tool Repairs	Team Equip. Repairs	Labor Repairs	Team Hire Drav'g'e	Board Men & Teams	Railway Transp.	Incidentals	Dividends: Certif. Number	Dividends: Common Stock	Dividends: Pref'd Stock	Int. & Principal: Borr'wed Money	Int. & Principal: Bonds
		Brought Forward																						

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Set of Accounting Forms for Classifying Receipts and Expenditures Which Show at a Glance the Disposition of the Money.

ing employed for separating expense accounts, the result is that it is all 'lumped' in one sum. Whether there be a profit or loss in the business, no one wants to undertake the job of going over and auditing the past, which may be so nearly forgotten. Therefore no knowledge is gained as to where construction improvements and greater maintenance may be exercised.

FORM "E"

BALANCE SHEET

ENDING 19

TO CASH RECEIVED, DR.		BY CASH PAID OUT, CR.	
Balance forward from		Construction disbursements	
Exchange rentals		Operating disbursements	
Rural rentals		Maintenance disbursements	
Tolls, gross or net		Dividends paid on Preferred Stock	
Messenger fees		Dividends paid on Common Stock	
Service connections		Interest and principal on Bonds	
Sales from ware-room		Interest and principal on Borrowed Money	
Sales of other property		Cash on hand to balance	
Preferred stock sold			
Common stock sold			
Bonds sold			
Borrowed money			
TOTAL		TOTAL	

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The Balance Sheet Which Shows a Summary of the Figures on the Other Sheets.

"By having a simple and complete system of accounting with which to classify all expense accounts, it is an easy matter for most any one to compare the earning capacity with the investment and operating expense of any branch of a telephone system.

"Being unable to find a set of accounting blanks which in my opinion had the proper classification, I decided to make one according to my idea, principally to be used by our company, although I had enough struck off so that we could supply other companies who may want them.

"These forms are self-explanatory, with, perhaps, the exception of form "B," in which, it will be noticed, there are credit and debit columns for goods consigned to and from the wareroom. The purpose of this is to provide for materials which are ordered for various purposes, and usually all contained on one invoice. It would be difficult to classify each item, therefore all goods received should be consigned to the wareroom and the cash check given in payment, for the goods should be entered in the wareroom column;then, as material is taken from the wareroom, a wareroom check should be made out, showing the quantity and price of goods then carried forward to its proper column of classification according to the use made of the material. At any time the difference between the wareroom columns should show the amount of material in stock.

"These forms are ruled and printed on a good quality of paper and arranged to fit into a loose leaf cover which is furnished if desired, or they may be folded away with other reports."

Mysterious Disappearance of Drop Wire.

Since Christmas I have noticed articles in two copies of TELEPHONY referring to line wires burned by lightning, both of which recalled a similar case which occurred in Moxton, while I was manager there, during the summer of 1907.

One afternoon about six o'clock, a heavy electrical storm came up, accompanied by rain. As I was standing across the street from the telephone office an unusually loud lightning discharge attracted my attention, and about two blocks in the direction of the sound I noticed a heavy brown smoke rising. After some twenty or thirty minutes it ceased raining so hard, and I went to the scene of disaster.

Standing beside a little one story house was what was left of the largest and prettiest yard shade tree I have ever seen. Lightning had struck it near the top, twisting down it in a cork-screw path to about 25 or 30 feet from the ground, and then apparently leaving the trunk of the tree, and following along a large limb which had many leaves and small branches resting against the shingled roof of the house. This limb was just above brackets on which were terminated telephone drop wires of No. 14 iron wire, taken off a thirty-five foot pole on the sidewalk about one hundred and fifty feet distant. The discharge must have left the limb and roof, and jumped to the drop wire, for I could find nothing to show where it went into the ground near the house. Nor, to my surprise, was there any drop wire at all. I looked carefully and climbed the pole. The cross-arm was shattered and the pole split most of the way down. The ends of the wires coming from the exchange looked as if they had been held in a furnace. One end was about six inches long and the other about two feet. I came down the pole and looked on the ground for the drop wires, but could not find them. At the bracket end, the strip running down the side of the house was knocked off, and one glass shattered, the outside wire disappearing completely. The shingles from the roof were scattered all over the yard, and some even in the street. Inside, the telephone was in perfect condition, as was the inside wire. There was no protector at the house. Of course the people in the house were considerably alarmed, but no one was hurt in the least, though the kitchen stove had jarred down. That night I went to the office and learned that nearly every telephone in the city was out of order, some due to crosses from the wind, but most of them from burn-outs. The operators on duty at the time said that they nearly all went out at once when that loud clap of thunder was heard.

Next morning I went down to the scene of the lightning stroke, and had new drop wires put up, but the subscriber didn't want any more telephone, and I never did succeed in putting the instrument back to work.

There was no ground wire running down the pole which was struck, but running parallel was a No. 12 iron which extended to a farmer's house some miles out in the country. This wire probably discharged to ground, for the ringers in the farmer's house were burned as well as the drop coil at the office.

I told one or two telephone engineers about this and I believe they thought I was putting up a joke, but every word is true. The drop wire was gone, and never showed up, and I thought all along that some one must have stolen it for a clothes line, until I read the two articles in TELEPHONY some weeks ago. One expert telephonist told me that lightning played some funny tricks sometimes, and that was the only explanation I ever got.

West Raleigh, N. C. Isaac N. Tull.

Why the Telephone Would Not Ring.

A business man reported his residence telephone as being in trouble, stating that there were times when the bell would not ring. Our test showed the instrument working all right. In a few days the same telephone was reported in trouble again, the man saying that he knew his wife was there and that the telephone would not ring, or she would answer. A troubleman was sent to his residence, and everything tested all right.

The chief operator was instructed to let me know at once when this happened again, and the next time Mr. Business Man brought in his report we had a man make a quick trip to the house; the lady was found to be visiting a neighbor. After this there was no more trouble with the bells not ringing.

Robinson, Ill. F. E. Drysdale.

Current News

Conventions, Ohio, Columbus, March 17, 18; Indiana and Michigan, South Bend, Ind., May 11, 12.

Indiana and Michigan Telephone Men to Meet Together May 11 and 12.

Arrangements have been completed for the holding of the annual meeting of the Indiana and the Michigan State Independent telephone convention jointly in the city of South Bend May 11 and 12. The headquarters will be in the Oliver Hotel, and morning, afternoon and evening sessions will be held in the auditorium of the Elks' Temple. The morning sessions of the two days' convention will be held jointly by the two associations, and an excellent program is now being prepared by a joint committee. The afternoon session will be held by each association separately so as to transact the business and take up grievances peculiar to each association.

To a certain extent the representatives of the State Associations of Indiana and Michigan are to assemble as guests of the South Bend Home Telephone Company. Mr. Theodore Howard, president, has arranged for a banquet the first evening and a theater party on the evening of the second day.

One of the principal subjects to be considered by the joint convention is the best and most feasible plan for the immediate advancement of the interests of the rapidly developing Independent telephone system throughout the central states.

The joint convention marks an innovation since the Indiana association has held but one convention outside of Indianapolis and the Michigan association never held a meeting outside the state.

Officers of the National Independent Association have signified their purpose to atend the joint meeting.

Plans for Ohio Convention, March 17 and 18.

Frank L. Beam, president of the Ohio Independent Telephone Association and the members of the executive committee of that organization are arranging the program for the annual convention of the association, which will be held in Columbus, Thursday and Friday, March 17 and 18. The convention will be held at the Hartman Hotel, as usual, and will have two full days. One of the features will be a banquet to be held on Thursday evening. The second day will be given over to a discussion of practical methods of operating and of technical matters of interest to telephone managers. A number of prominent telephone men from outside of the state will be present, and it is expected that the convention will be the largest ever held in the state since the inception of the organization.

Morgan Representatives From New York Visit Ohio.

A very important meeting of telephone men occurred in Columbus, Ohio, early in the week, when H. P. Davidson, of the firm of J. P. Morgan & Co., and a director of the American Telephone & Telegraph Co., accompanied by F. W. Stevens, also of that firm and the representative of the Morgan companies on the Board of Directors of the five Independent companies in Ohio bought by Morgan, inspected the plant of the Columbus Citizens Telephone company of Columbus. The visit of Mr. Davidson was to inspect all the Independent properties in Ohio in which his firm is interested, and also to meet some of the local men interested in that business.

Messrs. Davidson and Stevens while not professing to be technical telephone men, were well pleased with the result of the inspection of the Columbus Citizens company, and were eminently satisfied with conditions as they were found. They gave out an interview in which they said the Columbus plant appeared to be in a high degree of efficiency.

Frank A. Davis, president of the United States Telephone company and the Columbus Citizens company, gave a luncheon at the Columbus Club in honor of the New Yorkers. Present at the luncheon were Messrs. Davis, Davidson, Stevens, Frank L. Beam, president of the Ohio Independent Telephone association, S. E. Ward, Mansfield; David J. Cable, Lima; Henry P. Folsom, Circleville; C. A. Otis, Jr., Cleveland; Gansey R. Johnston, L. D. Hagerty, F. R. Huntington, and C. C. Griswold of Columbus. The last named gentlemen are members of the board of directors of the Columbus Citizens company.

Mr. Davidson gave a little talk to the telephone men assembled after the luncheon, in which he assured them that the firm of J. P. Morgan & Co. had purchased the Independent properties purely as investments and that it had no intention of turning them over to another syndicate or corporation. He said the company would continue to operate the concerns, bringing them up to the highest degree of efficiency and supplying all required financing to build and equip extensions until they would be able to supply all the needs of the cities in which they are located He said the firm expected to co-operate with other Independent companies of Ohio and adjoining states to do all possible in widening the scope of the Independent telephone movement. In concluding his talk he said that he hoped often to meet the Independent telephone men of Ohio and Indiana and that he would assist them in working out their problems as he could. He said that no increase in rates in any city is contemplated, and that every effort will be made to make the six plants controlled by the Morgan company the best in the country.

Messrs. Davidson and Stevens came to Columbus from Cleveland as guests of C. A. Otis of the brokerage firm of Otis & Hough. Mr. Davidson left for New York and Mr. Stevens left for Detroit. Both will be present to attend the annual meeting of the Ohio Independent Telephone association which meets March 17 and 18 at the Hartman hotel.

F. A. Davis, president of several of the Morgan companies, returned recently from a visit to New York, where he was called to confer over extensions and improvements of the Independent systems in Ohio.

Illinois Legislature Passes Law Providing for Telephones in Mines.

A year ago the legislature of the state of Illinois, having some difficulty to satisfy both the miners and the operators in the matter of mining law, and having a number of bills under consideration that were conflicting and bothersome, decided to instruct the Governor to appoint a mining law commission which should study the whole question and make a report to the next general assembly. That commission was composed of practical mining men both among the operators and among the miners, and also had a number of independent but thoroughly well-informed persons who should act in an advisory capacity, and as a sort of balance-wheel.

After having studied conditions, not only in this country, but abroad, this mining commission completed its report and submitted it to Governor Deneen, who transmitted the report and the bills to the legislature with a special message recommending the passage of the bills.

During the past week the legislature passed the bill and it will become effective July 1. It will create a demand for mine telephones, as can be seen from the following:

As a foundation for the whole matter, the Commission presented one law which would provide for certain appli-

ances in and outside the mines, these being intended to aid toward preventing disasters, and among other things they have an elaborate system of communication and signals which shall act as a warning to the men and enable them to take care of themselves.

Section 5 of the law states:

"There shall be a system of party line telephones which shall include one telephone on the surface not more than one hundred (100) feet from the tipple, and one at the bottom of the hoisting shaft, or, in slope or drift mines, at the first cross entries in operation; and in addition thereto, there shall be one telephone on each side of the mine when such side is in more than one thousand (1,000) feet from the bottom of the hoisting shaft, or is in one thousand (1,000) feet beyond the first cross entries in operation in slope or drift mines; and in addition thereto, there shall be one telephone for each one hundred (100) employes or major fraction thereof in excess of one hundred (100) employes in said mine.

"There shall be an electric gong signal system actuated by an electric generator current and operated from the bottom of the hoisting shaft or from the tipple in slope or drift mines. The wires shall be of not less carrying capacity than No. 12 iron wire. The gongs shall be not less than eight (8) inches in diameter. Only non-sparking bells shall be used.

"In pillar and room mines there shall be a gong in one entry of each pair of entries, not more than two hundred and fifty (250) feet from the face of said entry. In long wall mines there shall be one gong on each main heading in operation not more than two hundred and fifty (250) feet from the face, and in addition thereto, there shall be gongs on cross roads in operation off of main headings so there shall be one gong for not more than one thousand (1,000) feet of working face in operation."

In section 6 the following paragraph appears:

"In mines constructed in accordance with the provisions of this Section 6, in addition to the telephones required by this act to be installed inside the mine, there shall be one (1) gong not less than twelve (12) inches in diameter with non-sparking bell, located near each telephone inside the mine, actuated by electric generator current operated from the bottom of the hoisting shaft or from the tipple in slope and drift mines. On becoming aware of any serious danger requiring the inside employes to come out of the mine, it shall be the duty of the person having charge of the outside telephone immediately to ring the danger signal on the gongs, and it shall be the duty of all persons who hear such danger signal or receive information thereof to cooperate in giving notice thereof to all other persons in the mine."

The Woods Bill in Ohio.

The Woods public utilities bill, which was introduced in the Ohio General Assembly early in the present session has been the subject of much discussion in Independent telephone circles in Ohio during the past two weeks. A number of public hearings have been held by the committee having it in charge, of which the last was on Tuesday, March 1. Monday evening the shippers of the state appeared before the committee with their arguments against the measure because of the provision of merging the proposed public utilities commission with the Ohio railway commission.

Newspapers announced that the committee will recommend the bill for passage, but it is believed that several amendments will be made at the last minute. Mr. Crawford, chairman of the committee, is disposed to report the bill to the house without radical change. In that way the big fight will be transferred from the committee rooms to the floor of the house. At hearings before the committee J. E. Todd, of Columbus, representing the Morgan interests, and Gansey R. Johnston, general manager of several of the Morgan telephone companies, spoke against the bill. "The enforcement of the law would mean ruination and bankruptcy of all Independent telephone companies of the state," said Mr. Todd. "The ultimate result would be to drive all the telephone companies of the state into one giant corporation."

G. R. Johnston deprecated the depreciation clause in the measure, declaring that telephone companies were still in their infancy and that experts were unable to fix a reasonable ratio of depreciation.

It is thought the bill, when favorably reported by the committee, will be made a special order of business early in March.

Wisconsin Railroad Commission Grants Increase in Rates.

The Railroad Commission of Wisconsin has granted the petition of the Oostburg Telephone Company for an increase in rates. The fact was brought out in the testimony that with the uniform monthly rate of $1 per telephone now charged by the company for all classes of subscribers, the income derived is insufficient to cover operating and maintenance expenses. From facts presented at the hearing it appears that the company is maintaining a full metallic 24-hour service with good equipment. The engineer's valuation of the property was $6,455. The annual report of the company for the year ending June 30, 1909, shows a deficit of over $300, without any allowance being made for either depreciation or interest on the investment. The schedule as proposed by the company calls for a business rate of $2 per month, single-party, or $1.75 per month, two-party, and residence rate of $1.50 for single-party and $1.25 for two-party. The rural service rate is to be $16 per annum, payable quarterly with a discount. It is also understood that the number of parties to a rural line is to be kept down to five wherever possible, which is in accordance with the desires of the commission. The uniform charge of 50 cents per month for extension telephones, which the company wished to put into effect was not allowed by the commission. Because of the difference in service rendered, the same distinctions must be made here as are made between business and residence rates. The rates as allowed were 25 cents for residence and 50 cents for business telephones.

On the basis of last year's report, and with fairly reliable data furnished by the manager of the company as to the probable number of subscribers which would fall in each class, the commission estimated the probable revenue under the new system of rates. Allowing 7 per cent for depreciation the net return would be approximately 3 per cent. While this is not considered an adequate return, it is expected that the future development of the business will increase the rate to a reasonable figure.

Leland Hume Comments on Conditions in Louisiana.

The general manager of the Cumberland Telephone & Telegraph Company has written, under date of March 1, the following:

"If you will make investigation of the facts, you will find that the claims of Mr. Charles F. Speed, secretary of the Home Telephone Company at Monroe, La., with regard to the situation at Shreveport are not substantiated by the facts This is doubtless due to Mr. Speed's comparative newness to this section of the country, and his lack of personal information about the situation at Shreveport. Therefore, the article in your issue of February 26, on page 264, should be corrected sufficiently to give the public the benefit of accurate information. In the first place, the responsibility of the telephone service at Shreveport is a divided one, there being two companies in the field, the Cumberland company,

and the Shreveport Home Company, owned, however, practically exclusively by Ohioans. At Shreveport we are serving 2,021 subscribers—of this number, 88 are using Blake instruments at rates corresponding to the equipment furnished—these, however, are a few of the old subscribers who have not voluntarily changed to the up-to-date type of instrument that more than nineteen-twentieths of the subscribers are using. The other company at Shreveport has not over one-half the number of subscribers that the Cumberland has, although all of its rates are lower than the Cumberland's, and when you take into consideration the size of their exchange, the meagerness of connections and facilities offered, their rates are doubtless full high.

"When it comes to Monroe, our competitor does not appear to be posted, although he has been stationed for a little while in that splendid Southern city. If we are to be guided by the telephone directories that are furnished to the subscribers of each company, then we refer you to the comparative list which we have prepared, showing the situation as late as November, 1909, the Cumberland company at that time serving 692 subscribers, and the Monroe Home Telephone Company 475.

"It was just about this time that the Monroe Home Company changed its equipment to some type of flash light system If it has gained any subscribers since the change, it has not done so at the expense of this company's list of patrons. We have good grounds for the continued belief and statement that we have in Monroe fully 200 more telephones than has the Monroe company. We challenge the manager of that company to produce a comparative list of subscribers, and show that he has within 25 per cent of our number. It would be a wholesale change if the promoters of these so-called home or independent companies would get down to facts and stand ready to back their statements with satisfactory proof. You will understand that while we have about two hundred telephones more than our competitor at Monroe, we are at the same time charging more for our service than our competitor is charging, and this, too, is right, for we are furnishing a more valuable and more extensive service."

"(Signed) Leland Hume, General Manager."

Ohio Physical Connection and Merger Bills Out of Committee.

After several public hearings before the house committee on railroads and telegraphs, both the Elson and Billingslea bills, dealing with telephone matters in Ohio were approved by the committee and placed on the house calendar. Both will come up for passage or rejection within a few days.

Many warm interchanges took place before the committee at the three public hearings given. Upon each occasion representatives of the Independent telephone interests argued against them, and hinted that the forces behind the measures were opposed to the principle of competition in the telephone field. Frank L. Beam, president of the Ohio Independent Telephone Association, said the Elson bill paved the way for mergers between present Independent concerns and the Bell. He said it would permit of a telephone trust which would effectually stifle competition. Mr. Beam's statement follows: "The Bell interests are back of the Elson bill and they do not deny they want it passed. If enacted it will simply mean the elimination of competition in the state. Do you think the people of Ohio want the bill?"

J. H. Ainsworth, manager of the Dayton Home Telephone Company, and D. J. Cable, of Lima, were also before the committee. Both disapproved the bills.

R. G. Stevens of the Bell Company at Columbus said the attorneys of the Central Union Telephone Company were of the opinion that the Valentine antitrust law did not stand in the way of a telephone merger as telephones were not a "commodity" as defined in that statute. He said that many attorneys held otherwise, and the object was to have the way cleared by means of the Elson bill.

J. E. Todd, an attorney of Columbus who represented the Morgan interests, spoke at length against the bill, as did G. R. Johnston, general manager of the United States Telephone Company and the Columbus Citizens Telephone Company. Other speakers were Colonel W. D. Rush of Greenville, S. E. Ward, Mansfield; C. D. Young, Delaware; C. L. Jones, Athens; A. J. Hess, Sidney, D. E. Fuller, Clyde; F. E. Knapp, Bellevue; W. L. Cary, Cleveland; Charles Cary, Millerburg, and Charles E. Hollender, Newark.

Ontario Likely to Pass Telephone Control Bill.

The tone of the discussion in the Ontario Assembly dealing with the recent bill for regulation of telephone companies descriped in TELEPHONY seems to be favorable to the passage of the bill. Hon. A. G. MacKay, in discussing the bill, declared that the Dominion Railway Board controls the rates, agreements and acts of the Bell companies, and the Ontario Board would control the rates, agreements and acts of the local companies. There seems to be no desire to have the government take over any of the lines.

A New Use for the Telegraphone.

The Poulsen telegraphone, presenting a new phase of the utilization of the telephone receiver, has shown its possibilities in a recent European test. During the recent International Technical Congress in Copenhagen, the telegrophone was substituted for stenographers to record the proceedings. As the papers were read in different languages, it was found difficult to secure stenographers who, besides being conversant with the different languages, also had some technical knowledge. It was therefore decided to use the telegraphone at all meetings of the three sections.

The transmitters, mounted in front of the speakers, were connected to two telegraphones, installed in an adjoining room. Each of the spools of the telegraphones contained .62 mile of steel wire, and was capable of recording speech for ten minutes. The two telegraphones were working together, so that when the wire of the first machine was used up, the second machine was put in, recording until it was filled, when it was replaced by the first machine, with clear wire or new 40 hours and thus nearly 150 miles of steel wire were used

For reproduction of the recorded speech was an engineer who understood the language and subject in question, listened to the telegrophone and then, omitting all unnecessary words, dictated the matter to a stenographer.

It was found to be comparatively easy to understand what was recorded, especially since the telegraphone was so constructed that by pressing a button, it could be made to repeat.

It was claimed that the system gave entire satisfaction during the whole congress.

How Measured Service is Forced Upon Eastern Business Men.

In its comments on "trust" methods of the local Bell telephone corporation the Newark, N. J., *Star* says:

"Recently the telephone company issued a statement to the effect that the mileage charge from Elizabethport had been abolished. From recent developments this was apparently only a ruse to get the downtown subscribers to give up their unlimited contracts and sign limited ones, in return for which the mileage of $30 per year would be cut off, but not otherwise.

"This inference is borne out by the experience of B. B. Miller & Co., the largest real estate dealers in Elizabethport. Mr. Miller declares that up to a few weeks ago he had an unlimited service contract with the New York Telephone Company, for which he paid $130 per year, $30 of which was for mileage.

A representative of the company called and informed him that the mileage rate was to be abolished. This led Mr. Miller to believe that his rate for unlimited service in the future would be but $100 per year. Later another representative called and informed the real estate man that in order to have the mileage charge cut off he must sign a limited service contract. The contract Mr. Miller signed gives him but 2,400 calls a year, for which he must pay $90. The rate for additional calls is three cents each, and as it is probable that the calls of the firm will run up to 5,000 this year, it is easy to see that the telephone company will get a much larger revenue from the office than under the unlimited contract, with the mileage added.

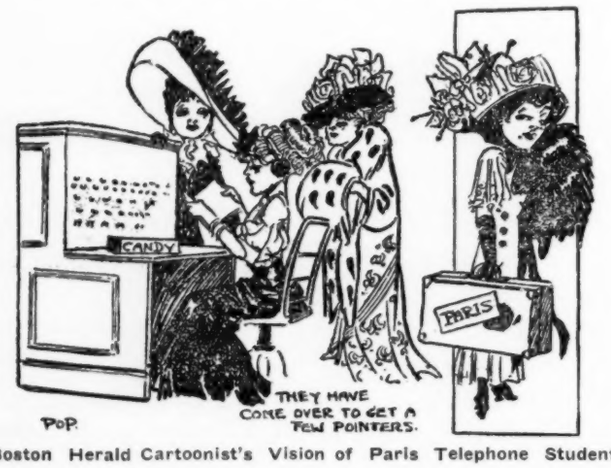
"The Union County Trust Company, of which Charles H. K. Halsey, president of the Elizabeth Board of Trade, is president, began the erection of a new building several months ago. During the building operations the company were compelled to secure temporary quarters a short distance from the site of their new building. Mr. Halsey asked the telephone company to change the banking concern's instruments to the temporary location, but was informed that in order to have this done he must enter into a limited service contract instead of the unlimited one which the trust company formerly had.

"Charles D. Doctor, cashier of the Elizabethport Banking Company, and treasurer of the First Street Business Men's Association, had a similar experience to that of Mr. Halsey. He desired to have an extension telephone installed from the main room of his institution to his private office and the order was put in for it through a representative of the company. Later the man called and informed Mr. Doctor that his company would not accept the order for the extension under the unlimited service contract held by the bank, and that he must enter into a limited service contract to get additional conveniences. In this case the arbitrariness of the trust was ineffective, for Mr. Doctor rescinded the order for the extension."

Newspaper Conception of Telephone Engineering.

The announcement that some young telephone engineers have been deputized by the French government to spend some time in New York studying American methods of conducting the business in order to fit themselves to improve the service of Paris, has given rise to some amusing reports in the newspapers. The facetious character of the comment made by many representative journals is aptly shown by the accompanying cartoon from the Boston Herald.

Although newspaper editors may be allowed to have their



Boston Herald Cartoonist's Vision of Paris Telephone Students

jokes, there is, nevertheless, a serious side to this. It shows that the general public and the average newspaper writer are likely to have little conception of the character or magnitude of the problems involved in conducting the telephone business, or the type of employes who fill the positions of responsibility. Incidentally it brings out another straw which points to the moral which we have been emphasizing frequently, that the conduct of the operator is the principal basis on which the average subscriber judges the telephone company, as she is the representative who most often comes in personal contact with the user of the service.

Tri-State Company of Minneapolis Declares 27th Quarterly Dividend.

Holders of preferred stock in the Tri-State Telephone & Telegraph Co. of Minneapolis received on March 1 checks for dividends at the rate of 6 per cent per annum. Under its guarantee the company also paid the 32nd quarterly dividend of the Twin City Telephone company.

Eskimo Conception of Telephone.

Prof. D. B. McMillan, a member of Peary's exploration party tells an amusing story of an Eskimo's attempt to build a telephone line. He had inquired the use of a long piece of wire, and been told how it was used by the white men.

Soon afterward members of the party found the Eskimo beside the wire, which he had strung over some sticks. He would talk to one end of the bare wire as loud as he could shout, then run to the other end and listen, expecting to hear his own words repeated after the fashion of an echo.

Independent Company in Northern New York Will Extend Lines.

The Adirondack Home Telephone Company, of Malone, N. Y., has elected the following directors: N. M. Marshall, C. W. Breed, E. M. Perkins, J. R. Weston, R. L. Sisson, S. D. Benjamin, C. S. Olmstead, John Bird, W. D. Manley, I. R. Coughtry, T. M. Brush, Howard Hendrickson, I. H. Griswold, E. M. Woodard and George H. Rymers. The directors have chosen the following officers: President, N. M. Marshall; vice-president, I. H. Griswold; secretary, I. R. Coughtry; treasurer, J. R. Weston.

The company operates exchanges in Malone, Potsdam, Canton, Chateaugay and Norwood and is one of the large Independent telephone companies of the state. At the meeting encouraging reports on business were submitted, and plans completed to extend the lines this summer south and west to connect with Independent telephone companies in Watertown and Utica.

Union N. Bethell Elected President of the New York Telephone Company.

At a meeting of the board of directors of the New York Telephone Company Mr. Union N. Bethell was elected president to succeed Mr. Theodore N. Vail, who becomes chairman of the board of directors. The following changes were also made in the board of directors.

Messrs. W. D. Sargent, Brooklyn, N. Y.; ex-Governor Griggs, Paterson, N. J.; James H. Manning, Albany, N. Y.; John F. Maynard, Utica, N. Y.; William Nottingham, Syracuse, N. Y.; Benjamin E. Chase, Rochester, N. Y.; and Henry M. Watson, Buffalo, N. Y., were elected directors in place of Messrs. Davis, Kingsley, Gould, Glowry, Willever, Van Avery and Brooks, resigned. The retiring directors represent the Western Union interests in the board.

In addition to bing president of the New York Telephone Company, Mr. Bethell is now president of the Bell Telephone Company of Pennsylvania, the Central District & Printing Telegraph Company, The Chesapeake & Potomac Telephone Company, The Delaware & Atlantic Telegraph & Telephone Company, and the Diamond State Telephone Company, covering a territor yof about 124,000 square miles. The telephone plant in this territory represents an invest-

ment of about $175,000,000, and the companies supply telephone service to more than 1,150,000 telephones, and furnish employment to more than 31,000 employes. Mr. Bethell is also vice president of the American Telephone & Telegraph Company.

Mr. Bethell has been in the telephone field since 1888, although he is a comparatively young man, being only 50 years old. He was born in Indiana, and graduated from Hanover College in 1879, and later went to Washington where he was employed in the Pension Bureau. During his stay in Washington he attended the Columbia Law School from which he graduated. Shortly after he was admitted to the bar.

Mr. Bethell came to New York and becoming interested in the telephone business, which at that time was in its infancy, entered actively into telephone work. Mr. Bethell's rise was rapid, and shortly after becoming identified with The New York & New Jersey Telephone Company, he was made secretary and treasurer of that company. In 1893, due to his conspicuous ability, he was made general manager of the New York Telephone Company, and shortly after was made vice president.

With his election to the presidency of the New York Telephone Company Mr. Bethell becomes the head of the largest group of operating telephone companies in the Bell system.

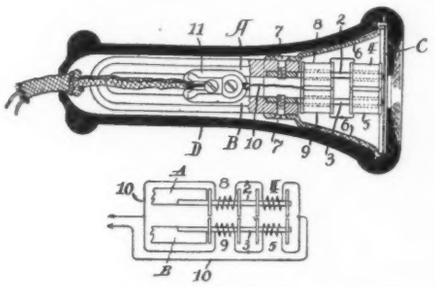
Work of the Patent Office

Conducted by Max W. Zabel

TELEPHONE RECEIVER.

C. D. Enochs, LaCrosse, Wis., patent 949,821, Feb. 22, 1910.

This invention contemplates a receiver having two sets of coils 4 and 8 which can be placed directly in series with the magnets, and which coils neutralize their effect in the diaphragm.



The diaphragm magnets operate as usual and oppose the auxiliary magnets. A copper shell is placed around the auxiliary magnets to reduce their impedance. The diaphragm magnets actuate the diaphragm by as usual by changing the magnetic pull. The coils 4, 5, represent the diaphragm magnets and coils 8, 9, the auxiliary magnets.

TELEPHONE CALL SYSTEM.

W. E. Zabst, Portage, Wis., patent 948,941, Feb. 8, 1910.

This system is of the lockout type and provides the controlling mechanism including a clock work and a single element between one of the wheels thereof and the hammer of the telephone ringer for automatically starting and stopping the motor after a predetermined time allowed for the signal to be given. Provision for preventing the ringer hammer from operating except when the motor has operated a predetermined time to render a given subscriber's apparatus operative is also made.

RAILWAY TELEPHONE SIGNALLING APPARATUS.

A. A. Monson, North St. Paul, Minn., patent 950,004, Feb. 22, 1910, assigned one-half to Frank W. Moffett, St. Paul, Minn.

This signalling system is designed for use particularly along railroads and comprises means at each station for calling each other station through the agency of relays and local circuits and step-by-step mechanism for making the desired connections.

TELEPHONE TRANSMITTER.

F. Gottschalk, New York, N. Y., patent 950,229, Feb. 22, 1910.

This transmitter has a current carrying cup having one side circular which is fastened to the diaphragm. The front part of the shell has an aperture through which a flaring cup projects and is secured to the diaphragm so that sound waves coming into this cup actuate the diaphragm.

This cup merely projects through the aperture in the front part of the transmitter to collect the sound waves.

SUPPORT FOR TELEPHONE RECEIVERS.

R. Zinsmayer, Sandusky, Ohio, patent 949,814, Feb. 22, 1910, patent assigned three-tenths to each A. Krepp and C. L. Blatz.

This patent is designed to provide means for holding the received of a desk telephone so that both hands are free. Provision is also made for moving the switch hook when the receiver is pushed out of its operative position.

COMPOSITE SYSTEM.

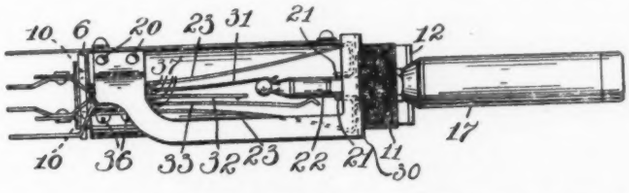
O. T. Lademan, Milwaukee, Wis., patent 949,188, Feb. 15, 1910, asisgned to Railway Telephone & Electric Co., Chicago, Ill.

This system is designed for railway service and contemplates a plurality of telephone circuits placed end to end. Each circuit has a plurality of bridged telephones, and telegraph instruments inserted serially between the circuits, using the line wires in parallel. Means are provided to telephonically connect the circuits together.

COMBINED JACK AND DROP.

C. D. Enochs, LaCrosse, Wis., patents 949,820, 950,168, Feb. 22, 1910, assigned to the Vote Berger Co., LaCrosse. Wis.

The drop and jack of the first patent has two springs 23, 23 which have front plates as shown. These are spread open



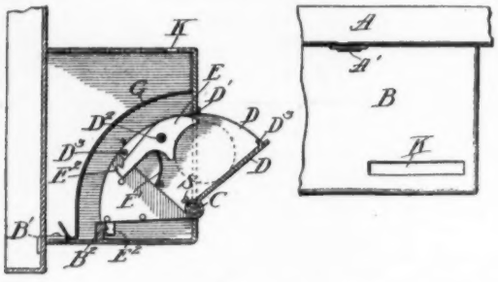
when the plug is inserted and this spreading actuates a spring thereby restoring the shutter of the drop. The other jack and drop is somewhat similar except that slides are used which are pushed open by the plug instead of the spring members as shown in the other patent.

PAY STATION BOX.

C. A. Anderson, Salina, Kan., patent 948,753, Feb. 8, 1910.

This device is a prepayment meter and has a plurality of pivotally arranged quadrants *D* which have catch lever *E* to

engage the catches *B*. The quadrants are all on the shaft *C* and are so arranged that they can receive the necessary number of coins for one month's rental. The coins must all be inserted, otherwise cap *D* cannot be closed and circuit established, as the finger *E* would rest on top of the catch *B* of those quadrants in which the coin was not inserted. When



the coins are all inserted, the cap is closed and circuit through the telephone established until the collector removes the coins at the end of the time period.

CABLE SUPPORT FOR TERMINAL OR JUNCTION BOXES.

H. H. Nicholson, Evanston, Ill., patent 948,674, Feb. 8, 1910.

This cable support comprises a pothead and a supporting device for the pothead to be driven into the pole and has means to guide the cable into the pothead. The device is designed to hold the cable and pothead firm in position on the pole.

SELECTOR.

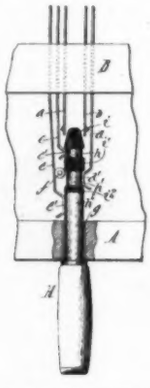
J. L. McQuarrie and E. B. Craft, New York, N. Y., patent 949,836, Feb. 22, 1910, assigned to Western Electric Co.

This system provides automatic switch mechanism of such character that the operating parts which make connection upon banks of contacts, are operated by local power means. In this way the impulses can be weak, and these impulses operate a stop so that after the impulses cease the connecting mechanism travels but one step to the predetermined place where the stop is set, in accordance with the number of impulses sent.

SWITCHBOARD JACK AND PLUG.

A. Larsson, Stockholm, Sweden, patent 950,107, Feb. 22, 1910, assigned to L. M. Ericsson Tel. Mfg. Co., Buffalo, N. Y.

The plug of this invention has raised insulating portions and the springs *d* and *e* have hooked extensions so they will not



enter the device between the insulating portions except when the plug is fully inserted.

DIAL FOR SELECTIVE SIGNALING APPARATUS.

D. W. Kneisly, Dayton, O., patent 949,797, Feb. 22, 1910, assigned to Dayton Telephone Lockout Mfg. Co., Dayton, O.

This dial is designed for automatically sending signals to the central office and has the usual finger holes. Instead of having the finger projecting through the holes, springs are provided under each hole which the finger presses down and this spring engages a stop when the dial is rotated to its limiting position.

SWITCH PLUG.

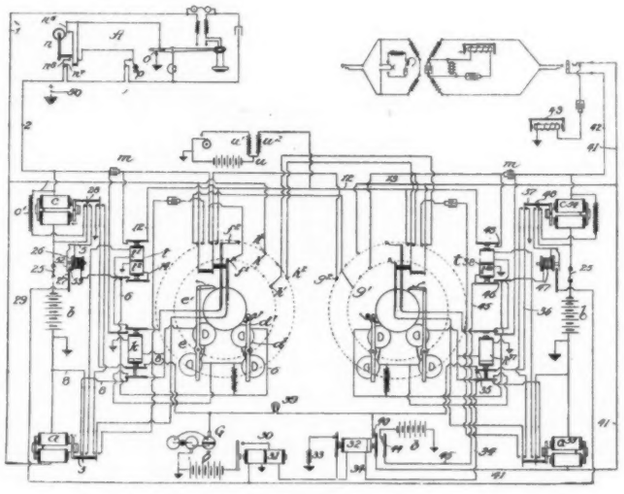
P. C. Ewing, Little Rock, Ark., patent 950,281, Feb. 22, 1910.

This switch plug is arranged to lie horizontally on the switchboard table and the cord passes through the side of the plug. Rails are provided with notches to accommodate the plugs in a horizontal position.

APPARATUS FOR AUTOMATIC EXCHANGES.

A. M. Bullard, New York, N. Y., patent 949,981, February 22, 1910, assigned to Western Electric Company.

This invention contemplates the use in an automatic exchange, of means which will indicate to the central station when there is a ground on one of the line wires. This applies particularly to the substation automatic mechanism which is connected by means of trunk lines to the central manual exchange. The means employed consist of a heat coil 26 which when current flows through the line relay *c*, will operate to close the circuit 29, allowing current to flow around the relay



30 to attract its armature. This armature controls a locking circuit, including a high resistance winding 31 for the relay. This locked circuit has two branches, one through the back contact of a signal controlling relay 32 and the other through the winding of the relay 32. When the relay 32 is energized, the line signal associated with the trunk line at the manual exchange is actuated and at the same time "busy" test is applied to warn the operator of the trouble when she makes connection.

POLE LINE LIGHTNING ARRESTER.

A. R. Rheinberger, St. Paul, Minn., patent 949,130, Feb. 15, 1910.

This patent claims an insulator mounted upon a pin, having a cap fastened around its lower edge, which cap is in electric contact with the line wire. Upon the central pin, a metallic ring is placed which is connected with the ground wire. An air gap between the ring and cap is arranged to take care of high potential discharges.

GROUND WIRE CONNECTOR.

F. E. McKenna, Wauwatosa, Wis., patent 949,743, Feb. 19, 1910, assigned one-half to Henry B. Burr, Milwaukee, Wis.

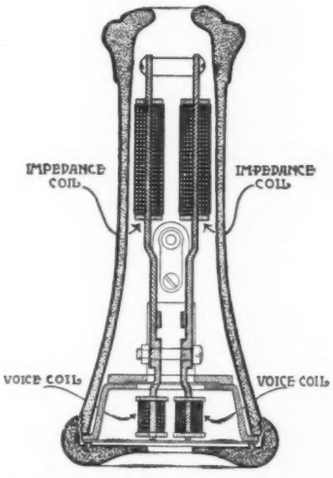
The ground wire connection of this patent comprises a bolt, a flexible metallic strip with one end connected to the bolt and a pair of members on the bolt between which the other end of the strip may pass and be fastened between said members when the bolt is tightened to fasten the strip.

Products of the Factory

New Monarch Receiver, Which Cannot Depolarize.

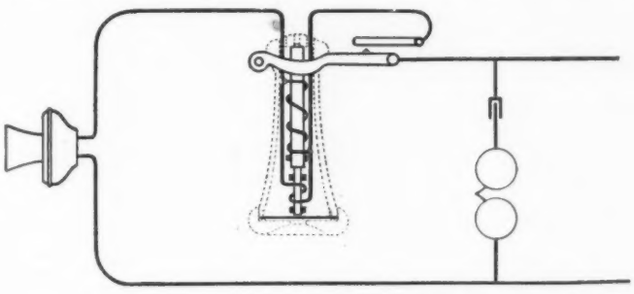
An important improvement that will be appreciated not only by the operators of common battery exchanges, but by their subscribers as well, is claimed to be effected by the Monarch direct current receiver. That it is radically different from other receivers called by the same name, is evidenced by the fact that the Patent Office, after its usual investigations, recognized this as being an entirely new device, and has issued patents to cover it. Owing to the fact that these patents were but recently issued, the new receiver is now introduced to the general public for the first time.

Operating men have seen during recent years, the introduction of many "direct current" receivers and have tried them, perhaps without knowing why an effort was being made to develop a new receiver. The general movement on the part of manufacturers was the natural result of the steady progress being made with telephone apparatus. Until a few years ago it was often said that the construction of a receiver was so simple any one could build one that



Sectional View of the Monarch Direct Current Receiver.

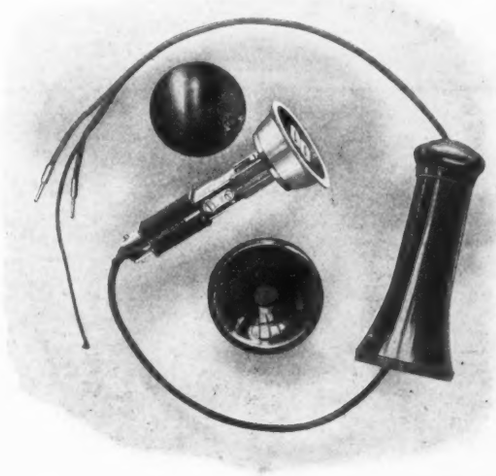
would talk well. This has been the attitude of the manufacturers and they have concentrated their attention on the transmitter and other parts. In other words, because the receivers were giving satisfactory service, and caused little trouble, it was assumed that no change was desirable. Now telephone men have come to realize that there are defects in the permanent magnet receiver for common battery work. It is difficult to make thousands of permanent magnets of the same strength. A magnet which is too weak will not exert enough force on the diaphragm and a magnet which is too strong, will exert too much. Then the talking coils had to be small, and, of course, could not be constructed to conform to the strength of the magnet, any more than the permanent magnets would adjust their strength to the various line conditions. Then there was the trouble caused by depolarization. The magnets in a receiver which had been in use a long time were almost sure to grow weak. Often a fall, or jar from some other cause would weaken the magnets. Furthermore, the current does not come directly from the line, inasmuch as it must pass through an induction coil and even with the windings that are considered most efficient there is some inductive loss; while in many cases the induction coil is not adapted to the average condition of the line, to say nothing of the variety of conditions established by almost every connection. In fact the manufacturers have come to recognize that the reproduction of the voice has been secured through a series of complications resulting in imperfect reproduction, which could not be charged up to the transmitter or line condition but were directly traceable to the causes cited. Consequently, there has been an



Circuit of the Talking Set When the Direct Current Receiver is Used.

effort on the part of almost every active manufacturer to produce a better receiver and a more simple condition. The Monarch company, going to the bottom of the situation, has produced a receiver which effects the desired results in a most direct way.

Before describing the new receiver, attention is called to the circuit it makes possible. It will be noticed that it is reduced to its simplest elements—the talking set consisting of only a transmitter, a receiver and a one point hook-switch. It would be impossible to make it simpler. There are two windings in the receiver, in parallel relation to each other. In other words, one side of the circuit leading to the transmitter is split, forming a two-way path. In each of these paths is a winding. Both windings are around the receiver core. The back winding is of larger wire and is around the heavy part of the core. This coarse winding over a heavy iron core is nothing more than a pair



The Parts of the Direct Current Receiver.

of retardation coils, the quantity of iron offering high impedance to the voice current. The winding around the smaller part of the core, therefore, receives the greater part of the voice current. Owing to thir situation, each one in the arm of the two way or shunt path to the transmitter, it is possible to make these coils of sufficiently

high resistance to enable them to properly perform their function, since the double path still leaves a comparatively low resistance between the line and the transmitter.

When the receiver is lifted from the hook, the direct current from the common battery at the exchange flows through both windings. The result is, the continuous iron core is magnetized evenly throughout its entire length. It is not, however, magnetized to its saturation point. When the voice currents begin, the impedance coils, offering a high retardation to them, force them forward to the talking coils directly under the diaphragm. Some of the voice currents do enter the impedance windings. Owing to the condition of this winding, the retardation effect is strong, but that portion of the voice current which does enter this winding being on the same continuous core serves to back up the action of the voice winding and intensify its effect. Nothing is lost. The two coils are working in close unison, since there is no condenser, or other separation between the windings. The path of the currents is clear of any interruption whatever. Not the slightest wave of the voice current is lost, but all are conserved and concentrated at the point where they will be most effective—right under the diaphragm.

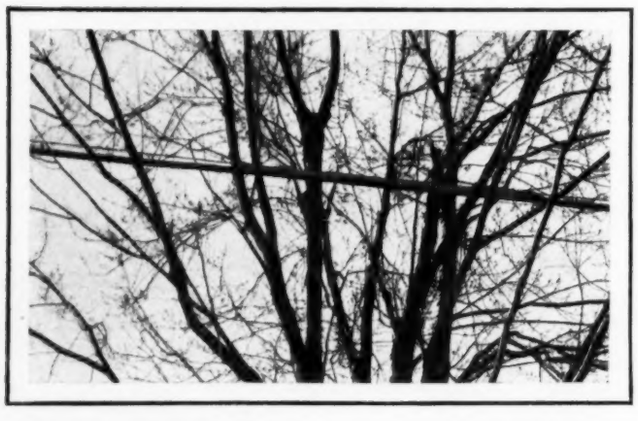
Unlike the receiver having a permanent magnet, this one adjusts itself to the existing conditions. With this receiver off, there is never a time when you have a light current trying to energize the voice coils against a strong permanent magnet.

The result of this construction, the manufacturer states, is a receiver giving a remarkably clear and distinct articulation; a freedom from inductive disturbances and a quality of tone that leaves nothing to be desired. And in addition to this, the receiver will stay good indefinitely for there is no permanent magnet to grow weak.

The Monarch Telephone Mfg. Co., Chicago, has issued a booklet describing the new receiver in detail.

An Aerial Cable Guard.

A conduit guard for protecting open wires or aerial cable running through branches of trees, over railroad crossings, street crossings, and all places where it may be required to "cluster" the wires, or "armor" them, has recent been brought out. It is made of hard insulating material and sheet metal that will resist wear on wires



Using the Aerial Cable Guard in Protecting Cable Passing Through Trees.

or cable when they come in contact with anything such as tree branches, etc. It is made so as to fasten firmly to the messenger wire and will not interfere with or obstruct linemen riding the messenger.

It is constructed of one piece of material, formed in such a manner that the two edges overlap on top of the messenger or suspension wire and is tightened by bolts underneath, thus holding the conduit firmly in place. The overlapping groove through which the messenger passes is three-eighths of an inch in diameter and the conduit two inches or more according to size of cable. The ends of each section of conduit are made so that any number of

The Aerial Conduit and Cable Guard, an Efficient Protector of Leads Running Through Trees.

sections may be used, each over-lapping the other, much as the joints in stove pipes.

The illustration shows the guard in use in protecting a cable which passes through a large maple tree. The protection afforded the cable from the limbs and body of the tree has been most satisfactory and the guard is said to have reduced cable trouble to a minimum in places where it is in use.

This aerial conduit cable guard is manufactured and sold by N. G. Hunter, the Aerial-Conduit Company, Wabash, Ind.

Telephone System of the Rochester Fire Department.

The Rochester Telephone Company of Rochester, N. Y., recently closed a contract with the City of Rochester for a new private branch switchboard to be used at Fire Headquarters.

Centered upon this board are individual lines from the offices of the fire chief, assistant chief, chief's clerk, battalion chief, superintendent of fire alarms, repair shop, etc., besides the lines from the twenty hose and eight truck companies throughout the city.

Under normal conditions, one operator easily handles the traffic on this system, but in order to assure rapid service at all times, both line signals and answering jacks are multipled into the second position, where a second operator may, when necessary, assume a part of the load. Each position is equipped with six pairs of cords, with an ultimate of eight, five two-way plug ended trunks with an ultimate of ten and the usual standard pilot and operator's equipment. Seven of the trunks connect with the city system of the Rochester Telephone Company. One of these trunks is designed for use only in transmitting signals from a special automatic fire alarm installed on a part of the company's regular subscribers' lines. One trunk terminates in the private branch board at police headquarters, and the other two are at present held in reserve. Special instruction keys are also provided, of such a type that, when necessary, the operator may call and issue general orders to the different fire companies simultaneously, no time being lost in repeating the same command a number of times.

The switchboard equipment was built by the Stromberg-Carlson Telephone Manufacturing Company of the same city, the cabinet being its standard A-1281 type. The woodwork is of birch with a rich mahogany finish, ample desk and drawer space and roomy stalls are provided at either end.

Located beside this board and handled by the same operator, is a one position board connecting with the lines of the Bell company. This system furnishes duplicate con-

nection with fourteen hose and five truck companies, but is used almost exclusively for receiving calls from the local Bell system.

The Gamewell system also terminates in the same room,

The Stromberg-Carlson Switchboard Built for the Rochester Fire Department.

the operator for this system, when on duty, aiding in the operation of the telephone system as emergency requires.

The Kellogg Switchboard & Supply Company Acquires Patents on Automatic System Developed by Milo G. Kellogg.

Patents covering systems in automatic and semi-automatic telephony developed by the late Milo G. Kellogg and his associates have recently been acquired by the Kellogg Switchboard & Supply Company of Chicago. The company is getting ready to put on the market an important new line of apparatus based upon these patents, although not at present prepared to solicit contracts for such equipment.

A Reliable Line of Insulating Compounds and Materials.

Excellent results are reported to have been obtained in practice with a filling compound for use in underground cable work manufactured by the National Insulator Company, 39 Sudbury street, Boston, Mass. This has stood rigid tests to demonstrate its ability to withstand high electrical tensions without breaking down, and also its moisture proof qualities.

Many telephone companies have found it difficult to buy first-class electric tape and rubber splicing compounds. The National Insulator Company is building up a good business on its goods in this class, of which it sends out samples for the asking.

It also manufactures a moisture proof paint which is said to be unaffected by acids of any kind, salt water, or any atmospheric conditions. It prevents rusting of iron, or corrosion, even when exposed to coal smoke containing sulphur fumes. Every piece of wood or iron covered with this paint is thoroughly insulated.

The National Insulator Company is building up an extensive business under the management of Mr. E. J. Cort. Its success is apparently in a very large degree based upon his determination to build up a permanent business on the basis of selling goods of the highest quality, making steady customers of every firm which sends in a trial order.

Stromberg-Carlson Company Election.

At the annual meeting of the stockholders of the Stromberg-Carlson Telephone Manufacturing Company the following directors were re-elected: William A. E. Drescher, F. C. Goodwin, Abram J. Katz, Frank N. Kondolf, W. Roy McCanne, Edward W. Peck, G. W. Todd, Albrecht Vogt, J. Foster Warner. Responsive to the excellent showing which the company has made in the past year and the material evidence presented in the reduction of the liabilities of the company in the sum of $155,000, in the last six month period of the year 1909, a unanimous vote of approval was given, commending the official management of the company and the committee of reorganization.

The Care of Gravity Batteries.

The Kellogg Switchboard & Supply Company, Chicago, has issued some material which will be decidedly helpful to a great many managers, being a contribution to the knowledge of a subject which is of wide interest, as shown by its recent discussion in the columns of TELEPHONY. The booklet is on the care of gravity batteries, and has just been issued by the company for free distribution. It represents the results of investigations of its engineers, and will save much experimenting. The booklet gives a number of figures which are not commonly known, such as the open circuit voltage of the cell, which is 1-1/10 volts. the internal resistance which varies from 1-9/10 to 3 ohms, according to the condition, and others equally important.

Readers will find a clear explanation of the chemical actions which take place in the cell, and methods of securing the best results in setting up and maintaining the battery.

ROME WIRE COMPANY, Rome, New York, is planning to issue during 1910 a series of postal card calendars. The

ROME WIRE COMPANY
SUCCESSORS TO
The Wire and Telephone Company of America
ROME, N. Y.
1910 March 1910
Sun. Mon. Tue. Wed. Thu. Fri. Sat.
1 2 3 4 5
6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 31

Postal Card Calendar Issued by Rome Wire Company.

March card is here reproduced. Managers are invited by the company to send in their names for the mailing list.

ELECTRIC STORAGE BATTERY COMPANY, Philadelphia, Pa., has issued in its Bulletin No. 119 a description of a high grade low reading pocket voltmeter, designed especially for battery testing. This instrument meets the essential requirements of reliability under severe handling and compactness which a pocket instrument must necessarily have. It is of rigid construction,

heavily nickel-plated, and the mechanism is similar to that used in high priced portable voltmeters. The instrument is manufactured by the Weston Electrical Instrument Company, especially for the Electric Storage Battery Company. Each instrument is furnished in a small aluminum carrying case

The New Low Reading Pocket Voltmeter for Battery Testing.

measuring about 3⅛ inches by 1 inch thick, weighing complete with case 11 ounces.

The scale reads from .2 of a volt to 2.8 volts with indicated divisions showing .1 of a volt, the divisions being of such a width that readings to .02 volts can be readily integrated, thus meeting all the requirements for individual cell testing. The instrument has a resistance of practically 100 ohms per volt.

KELLOGG SWITCHBOARD & SUPPLY COMPANY, Chicago, has recently issued a booklet fully describing the special equipment manufactured by the company for use in mines. Among the interesting details which are particularly emphasized are the strong hinges on which the front is mounted; a folding writing shelf on the inner side of the door, the method of protecting the interior parts from moisture, and the accessibiliy al aff parts of the set. The booklet also shows types of switchboards suitable for use in connection with a mine system, and telephones for use above ground.

Stromberg-Carlson Company Takes Its Own Medicine.

One of the best demonstrations of the utility of the telephone in a large modern factory is furnished by the system operated in the Rochester factory of the Stromberg-Carlson Telephone Manufacturing Company. The complete equipment for communication between all factory departments shows how thoroughly the company believes in the use of modern methods for securing efficiency by cutting out all opportunities for wasting time, and securing instantaneous action in matters calling for co-operation between men in widely separated locations. Following is an abstract of the factory telephone directory, which incidentally gives a line on the factory organization:

A

91	Allen, J. E.	Carpenter Department.
73	Anderson, E. W.	Winding Department.
12	Angle, W. M.	Assistant Secretary

B

102	Ballard, W. W.	Tracing Department.
11	Barnard, F. G.	Cost Department.
18	Blidd, A. B.	Traffic Department.
132	Bradbury, C. C.	Patent Department.
62	Braddock, G. A.	Tool Department.
21-105	Brautigam, F.	Time and Employment Dept.
120	Brown, D. W.	Cost Department.
16	Button, C. P.	Sales Department.

C

100	Campbell, W. S.	Gate House.
13	Caring, Miss F.	Purchasing Department.
74	Chamberlin, W. F.	
32	Child, C. J.	Main Office.
75	Clark, T. S.	Miscellaneous Assembly.
15	Cochrane, Miss M.	Telegram.
5-1R	Cooper, J. E.	Auditor.
4	Cox, G. F.	Purchasing Department.
39	Culver, C.	Sales Department.

D

50	Davis, P.	Woodwork Stock.
10	Dommerque, F	Special Representative.
5-2R	Doubleday, C. D.	Cable Testing.
41	Dunham, H. A.	Cashier.

E

120	Easterly, E.	Cost Department.
96	Eastwood, W. T.	Engineering Department.
130	Eidam, E. G.	Engineering Department.
49	Eldridge, E. S.	Drafting Department.
26	Elliott, W. B.	Machine Department No. 2.
42	Engstrom, N. A.	Telephone Assembly.
78	Erickson, A.	Drill Department.

F

84	Fabisch, J.	Switchboard Department.
64	Farnham, R. S.	Tool Stock.
33	Farrell, Miss W.	Sales Department.
87	Fernaays, B.	Millwright Department.
54	Fisher, G.	Power Engineer.
102	Fitz Morris, C.	Order Department.
117	Freeman, W. O.	Sales Department.

The above abstract covers a little less than one-third of the directory, and, through lack of space here, we are obliged to leave out many of the most important departments of the big establishment which are listed in the directory.

Second Edition of Transmitter Booklet.

Owing to the many calls for the novel transmitter booklet recently issued, cover illustration of which is shown herewith, the Kellogg Switchboard and Supply Company has gotten out a second edition. Copies of the booklet will be sent to interested telephone men on request.

This little booklet is made in the exact size and shape of the celebrated Kellogg transmitter. The front cover shows the highly polished nickeled face of the transmitter with the mouthpiece, the name "Kellogg," and the number of the series, which is now considerably over nine hundred thousand. The inside front cover is a reproduction of the inner face of the instrument; showing diaphragm, bridge, electrode, linen gasket and outer rim.

The outside back cover shows the rear of the transmitter, with the company name and patent number as it is in the actual apparatus.

The booklet is well illustrated with disassembled cross section and detailed views, while the reading matter is a

Cover Pages of the Unique Kellogg Transmitter Booklet.

complete description of the working parts and classification of the different styles of transmitters.

Condensed News Reports

Officers of companies are earnestly requested to forward us promptly all financial and other statements as soon as issued and any items of interest as to their plants and systems

PERSONAL.

MR. C. R. LANGLEY, who has been acting wire chief of the Coos Bay Home Telephone Co., operating several exchanges and toll lines throughout Coos and Curry Counties, Oregon, has been appointed General Manager of that company.

MR. C. F. BOOLSCHWEILER, for some time connected with the Pacific Telephone & Telegraph Company at Los Angeles, Cal., has resigned and accepted the position of general superintendent of plant with the British Columbia Telephone Company, with headquarters at Vancouver.

MR. GEORGE A. WARDLAW, who for the past eight years, has been editor of the Transactions of the American Institute of Electrical Engineers, has accepted the position of editor of the Electrical Record, with offices at 114 Liberty Street, New York. During his incumbency of the trying position of editor of the Transactions, Mr. Wardlaw made an excellent record and his many friends will be pleased to hear of the advancement which his new position offers.

MR. HARRY MILES, for some years manager of the Benton Independent Telephone Company at Prosser, Washington, has resigned that position to take one with the British Columbia Telephone Company at Prince Rupert, B. C., Canada. He took up his duties the first of March, and will build and manage the plant. His new position gives him much better opportunities to broaden his experience, and is a more responsible and remunerative one. Many readers of TELEPHONY will wish him success.

OBITUARY.

EUGENE SATTERLEE, a prominent investor in telephone property residing in Rochester, N. Y., died at his home a short time ago.

NEW COMPANIES.

KINDERHOOK, ILL.—The Kinderhook Telephone Company is the name of a new telephone company incorporated by Wm. Knodel, James P. Blake and W. C. Reinhart. The company is capitalized at $2,500, par value $37.50. R. T. Piper, of Kinderhook, is attorney.

MAPLETON, ILL.—The Mapleton Telephone Company was recently granted incorporation papers by the secretary of state. The company will operate a rural line in the vicinity of Mapleton. The incorporators are Alva Scott, Grant Powell and Albert D. Maple, of this ciyt.

PETERSON, IA.—The Brooke Telephone Line, of this place, has been incorporated with a capital stock of $1,000. The incorporators are Fred Plagman, C. W. Plagman, John Keadt and E. J. Meyer.

STOCKTON, ME.—The Stockton Springs Telephone Company has been incorporated and certificate filed with the secretary of state. The officers of the company are: President, Harry R. Hichborn; treasurer, Herbert L. Hopkins. A telephone system will be constructed and operated in Stockton Springs and Prospect; also at Sandy Point.

LITCHFIELD, NEB. (Sherman Co.)—With a capital stock of $20,000, the Farmers' Mutual Telephone Company has been incorporated by Wm. Garnett, F. M. Goff, W. J. Heapy and John Stewart.

ENGLEWOOD, N. J.—The Central Home Telephone & Telegraph Company, of this place, has been incorporaetd with a capital stock of $20,000. The incorporators are John Heck, Garrett Z. Demarest and LeRoy Vanderburgh. The company is to operate telephone and telegraph lines.

SYLVANIA, OHIO.—A telephone company to be known as the People's Telephone Company has been organized here and articles of incorporation filed. The incorporators are S. L. Wallace, Ralph Brown, John C. Jones, C. H. Maher and C. D. Calvin, and the capital stock is $10,000.

GUTHRIE, OKLA.—The Choctaw County Rural Telephone Company, of Messer, Okla., with a capital stock of $1,000, has been granted a charter. The incorporators are C. G. Messer, W. W. Westbrook and J. D. Henderson, all of Mesesr, Okla. It is proposed to construct telephone lines within this state.

GUTHRIE, OKLA.—The Big Pasture Mutual Telephone Company, of Walter, Okla., with a capital stock of $2,500, was granted a charter this week. The incorporators are H. O. Miller, of Walter, Okla.; T. E. Lewis and S. A. Jones, of Ahpeatone, Okla. The officers are not given. It is proposed to "establish, maintain and operate telephone lines in Comanche county, Okla."

SCHOOLTON, OKLA.—The Farmers' Schoolton Telephone Company was granted a charter to construct and operate a telephone system in Seminole county, Oklahoma. The company has an authorized capital of $1,000, and J. H. Herrel is president, R. M. Gunn, vice-president; C. W. Cargile, secretary, and Dr. J. B. Bright, treasurer.

SALEM, ORE.—The Glide & Peel Rural Telephone Company has filed articles of incorporation, with its principal office at Glide, Douglas county. The capital stock is $500 and the incorporators are John Alexander, H. A. Blakely and L. Lilly. The business proposed to be engaged in is the constructing, operating and maintaining a rural telephone system.

SALEM, ORE.—The Riverside Rural Telephone Company filed articles of incorporation recently. The principal office is at Riverside Flat, Malheur county. The capital stock is placed at $1,500 and the incorporators are S. M. French, W. G. Thomas and Charles Johnson. It is organized for the purpose of generally dealing in the telegraph and telephone business, and to maintain a rural telephone exchange system.

CENTERVILLE, WASH.—The Centerville Telephone Company has been organized by Theodore Jackal and Henry Yeackel. The capital stock is placed at $5,000.

OLYMPIA, WASH.—With a capital stock of $5,000, the Centerville Telephone Company, of Centerville, has been incorporated. The incorporators are Henry Garner, Theodore Jackel and Henry Yeackel.

MENASHA, WIS.—At a meeting of farmers in West Menasha the West Menasha Telephone Company was organized. The officers are: President, John Tofler; secretary and treasurer, William Grimes; directors, Henry Smith, Fred Schroeder, Reuben Thompson.

FINANCIAL.

LEWISTON, ILL.—The Clayton Farmers Telephone Company declared its regular five per cent dividend on issued stock at the regular meeting of the directors.

GOSHEN, N. Y.—The Orange County Telephone Company of Middleton, has declared its regular dividend of 6 per cent on its common stock, and a semi-annual dividend of 3 per cent on its preferred stock. In addition to this, $270 has been set aside for the employes as extra compensation for faithful services.

CLINTON, N. C.—Garland-Clinton Telephone Company has increased its capital stock from $5,000 to $25,000.

STOUCHBURG, PA.—The stockholders of the Womelsdorf and Rehrersburg Telephone Company voted to increase the capital stock of the company to $5,000. H. F. Lebo is secretary; Chas. Peiffer, president.

JONESVILLE, VA.—The recently organized Lee County Telephone Company has increased its capital stock from $2,000 to $4,000, and a line will be constructed from Jonesville to Big Stone Gap, taking in Olinger and Pennington. Here connection will be made with long-distance lines.

EDMONTON, ALTA., CAN.—The City Telephone Department expects to install between six and eight hundred telepohnes in Edmonton, and will ask for a grant of $80,000 on capital expenditure.

FRANCHISE.

PAOLA, KAN.—A franchise has been granted to the Paola Telephone Company.

SALISBURY, N. C.—A franchise has been granted by the Rowan county commissioners to the Gold Hill Telephone Company at Gold Hill, and to the Ebenezer Telephone Company, for the operation of telephone systems.

CONSTRUCTION.

CHESTERFIELD, ILL.—The Chesterfield Telephone & Telegraph Company has ordered a carload of poles and a large quantity of wire which is to be used in extending its system. The manager of the company reports that at no time since the organization of this company has the demand for service been as great as it is at the present time.

ROCK VALLEY, IA.—The Sioux Telephone Company is making arrangements to install a considerable amount of cable, thereby doing away with a great deal of the trouble common to open wire systems.

TIPTON, IA.—A new switchboard has been ordered by the Davenport-Tipton Telephone Company, and will be installed in the exchange very soon.

RUSSELL, KANS.—At a meeting of stockholders of the Russell and Galatia Telephone Company held recently it was decided to erect an exchange building.

BANKS, KY.—J. H. Banks and others will organize for the purpose of building a local Independent telephone system, and will build lines from Banks to Line Fork, a distance of 12 miles, where connection will be made with the Harlan County Telephone Company's lines.

CORNETTSVILLE, KY.—The Perry County Telephone Company will soon give subscribers to its Viper exchange better service by installing a new and up-to-date switchboard, and will also

repair and entirely overhaul its lines. The capital stock of the company has recently been increased.

SERGENT, KY.—The Sergent-Olo Telephone Company is beginning its spring construction work. Lines between Sergent, Colly and Hilliard are to be rebuilt, and an exchange will possibly be installed at Hilliard.

WHITESBURG, KY.—The Whitesburg Telephone Company will soon build an exchange at Eolia, Ky., where connections will be made with the Harlan Telephone Company's lines. Lines will also be built from Whitesburg to Cumberland and

BEACH, N. D.—The local telephone company plans extending its lines to the extent of 300 miles during the present year.

NEW CASTLE, PA.—The lines of the American Union Telephone Company between New Castle and Youngstown, Ohio, are to be entirely rebuilt during 1910.

SHARON, PA.—The Union Telephone Company has been very busy installing new telephones of late, and contracts for service come in very rapidly. The exchange proved to be too small and the company found it necessary to remodel the building so as to give more room, and it is thought that before long the quarters will again be found too small.

REGINA, SASK., CAN.—Simpson & Craig of Virdin, Man., have been awarded the contracts for the installation of telephone systems in the towns of Melville and Hanley.

WINNIPEG, MAN,, CAN.—Messrs. Nelson and Cassidy have been awarded a contract by the Manitoba Government for the supply of 150,000 cedar poles, for use on its telephone system.

ARGENTINA, S. A.—According to reports, the Telephone Company of The Chubut has been authorized to establish telephone lines between Patagonian towns of Rawson, Trelow, Puerto Madryh, and Gaiman.

MISCELLANEOUS.

WILMINGTON, DEL.—Charles C. Kurtz, Horace W. Gause, Pierre DuPont, H. P. Scott, Samuel K. Smith, George R. Webb and Alfred I. duPont were elected as directors of the Wilmington Light, Power and Telephone Company.

SIBLEY, ILL.—The stockholders of the Sibley Telephone Company elected the following officers recently: President, A. A. Absher; vice-president, E. A. Warner; secretary, C. G. Rohrer; and treasurer, E. D. Cameron. The old officers were all re-elected, and M. Rohrer was named a director to fill the vacancy caused by the death of Dr. Fikensher.

NEVADA, IA.—Reports presented at the meeting of the stockholders of the Story County Independent Telephone Company show that company to be in a very prosperous condition. The stockholders elected the following board of directors: J. A. King, R. A. Frazier, M. C. Allen, E. M. McCall, L. E. White, and F. S. Smith, all of Nevada; Dr. P. Joor of Maxwell; Jacob Ericson of Roland, and Ben. Johnson of Cambridge. F. M. Boardman was chosen secretary and manager, and D. R. Speiker, treasurer.

BAXTER, KANS.—The Baxter Telephone Company will very soon move into its new quarters in the State Bank Building.

PARSONS, KANS.—The Citizens Home Telephone Company closed a contract with the Riverside Rural Telephone Company whereby the latter company will receive the use of the switchboard in Parsons of the Home company. The new company was organized by farmers living near the Neosho river They have connected to the lines 30 subscribers and expect to connect more soon.

TONGANOXIE, KANS.—The board of directors chosen by the stockholders of the Suburban Telephone Company is, F. B. McKinnon, W. C. Allen, H. B. Browning, J. W. Kemler, and W. C. Phenicie.

GRAND CANE, LA.—The De Soto Telephone Company has sold its entire system to the Home Telephone Company of Shreveport.

MONROE, LA.—The Home Telephone Company, Ltd., of Monroe has purchased all the stock of the Camie, Cecil and Fay Telephone Company, capitalized at $10,000, and operating in Union parish, La. The company owned about 100 miles of toll lines and had over a hundred subscribers in Farmerville. The system will be improved at once, and will be a valuable asset to the Home Telephone Company.

GRAND LEDGE, MICH.—Officers elected by the Grand Lodge Telephone Company are, president, Banford Shadduck; vice-president, William Oding; secretary-treasurer-general manager, C. M. Avery. These, with Claude Barton, Harry Tanner, J. W. Ewing, Clark Smith and C. J. Tucker, constitute the board of directors. At present the company has more than 850 subscribers, and is in a very prosperous condition.

DARIEN, N. Y.—The Darien Telephone Company chose as directors N. A. Harper, M. W. Lincoln, W. H. Norton, F. M. Rogers, E. J. Sherin, Carl Sprague and Homer A. Weeks.

HOLCOMB, N. Y.—At a recent meeting of the Ontario Mutual Telephone Company the following officers were elceted: President, Garret W. Wheaton; vice-president, C. R. White; secretary, Frank R. Appleton; treasurer, Peter A. Spitz.

PHALANX, OHIO.—The Phalanx and Leavittsburg Telephone Company has completed arrangements for the sale of its property to the Warren and Niles Telephone Company of Warren, Ohio, and during 1910 it will be merged with that company. It now serves 110 farmers' homes and has applications for 50 more telephones.

MERCER, PA.—In the license court of Mercer county the judge called attention to the report which had been circulated to the effect that the wholesale houses had placed free telephones at certain points which could be used in ordering liquors from the wholesaler. The court held this to be a virtual starting up of branches of the business and stated that the practice would not be permitted.

CORSICANA, TEX.—The Eureka Telephone Company has been purchased by J. H. McCullough of Dawson. This company was organized about nine years ago with headquarters at Eureka.

TOPPENISH, WASH.—Attorney C. G. Lee has made legal arrangements for the removal of the headquarters of the Yakima Valley Telephone Company from Sunnyside to Toppenish. This change was decided upon at the annual meeting of the stockholders of the company a few weeks ago. Toppenish is a more central point for the main offices.

NEW LONDON, WIS.—The annual meeting of the Sugar Bush Mutual Telephone Company was held and beside the presence of the stockholders over a hundred interested farmers from Lebanon and vicinity attended. Officers for the ensuing year were elected as follows: Wm. Hutchinson, president; Andrew Ruckdashel, vice-president; Thomas Flanagan, secretary; John Spence, treasurer, and Fred Hilker, director. After the regular meeting Mr. McGillan of Appleton, and Mr. Rice of New London called an extra session and organized the Lebanon Farmers' Mutaul Telephone Company with the following officers: President, Ernest Thoma; vice-president, J. P. Malloy; secretary, Floyd Hurley; treasurer, John Pirner.

MISCELLANEOUS.

BOWMAN, GA.—An entire block of buildings in this place was destroyed by fire a short time ago. One of the heavy losers was the Bowman Telephone Company, the exchange being totally destroyed.

HOMER, ILL.—Since the new management has taken hold of the telephone exchange, an average of one telephone per day has been installed. As soon as the work can be undertaken several new lines will be installed, and the number of party lines lessened, thereby insuring better service.

SPRINGFIELD, ILL.—A report of the franchise committee directing the City's legal department to take steps to oust the Interstate Telephone company and prevent its doing business, because of alleged violations, was adopted.

COLUMBUS, IND.—The Indianapolis, Columbus and Southern Traction Company has decided to string 60 miles of copper telephone wire between Louisville and Indianapolis and will depend wholly on the telephone to operate the dispatching system. It is understood this wire will be contracted for soon.

LEAVENWORTH, KAN.—There are ten telephone companies operating in Leavenworth county, Kansas, being the Fall Leaf Telephone Company, Kansas City Long Distance Telephone Company, Kansas Telephone & Telegraph Company, Lawrence Home Telephone Company, McLouth Telephone Company, Missouri & Kansas Telephone Company, Potter Telephone Company, Suburban Telephone Company, and the Wyandotte Telephone Company.

LYNDON, KAN.—The Lyndon Mutual Telephone Company will soon have long-distance connections with the Kansas City Long Distance Telephone Company, as arrangements with that company have been made for the building of a metallic circuit line from Topeka to Lyndon, embracing Ottawa en route. Arrangements with the Scranton and Topeka Telephone companies embrace the building of a line from Lyndon to Scranton, and from there to Topeka.

ANACONDA, MONT.—The Montana Independent Telephone Company is to install a private branch exchange, with telephones to be installed in all departments of Lutley's department store, connection to be had with the central exchange. The Montana Independent company has been doing considerable within the past year in the way of installing private branch exchanges, having equipped fully a dozen big concerns with such service.

DEERING, N. D.—The Lone Star Telephone Company and the Margaret Township Telephone Company are trying to bring about a consolidation of the various Independent companies operating in this section, and prospects to this end look favorable.

VAN BUREN, OHIO.—The Farmers' Mutual Telephone Company held its annual meeting a short time ago and elected as officers, L. J. Crawford, president; S. D. Spitler, vice-president; C. W. Flanagan, secretary; E. C. Shouman, treasurer. The board of directors is, Lyman Conine, B Shupe, Wesley Trout, D. May, Dr. Hall, J. C. Kissell, and George DeLong.

SCRANTON, PA.—The Consolidated Telephone Company will soon install a telephone system for the Temple Iron Company. By this system all the offices and collieries and official residences between Forest City and Wilkes-Barre will be connected with telephone service. A private branch exchange will be installed in the offices, which are located in the Board of Trade building, and all lines will terminate on this board, connected to the Consolidated company's exchange by trunks. The Consolidated company has been doing much of late to give good service to all its subscribers, having enclosed all open wires in cables, etc.

ROCHESTER, N. Y.—It is reported that the death of Eugene Satterlee will not affect the suits filed by stockholders in the United States Independent Telephone Company. The executors of the estate, namely Hiram Wood, Edward Pillow and Albert H. Pritchard, will be substituted as the defendants. The suits have been postponed, however.